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**Ministry of Works and Supply, Zambia  
in collaboration with ASIST**

**Lusaka, Zambia  
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# **Labour-based Technology A Review of Current Practice**

PAPERS OF THE SEVENTH REGIONAL SEMINAR

*Theme of the seminar:*

***Contracting in Employment-intensive Works***

**Compiled by**  
*Angela Kabiru-Kangethe*



**International Labour Organisation**

**Advisory Support, Information Services and Training (ASIST)  
Nairobi, Kenya and Harare, Zimbabwe**

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## Abbreviations and acronyms

ASIST	Advisory Support, Information Services and Training
AUN	African Universities Network
BOQ	Bill of Quantities
CARNS	Community Access Road Needs Study
CBO	Community-based Organisation
CDA	Community Development Association
CPP	Community-Partnered Procurement
CSO	Civil Society Organisation
DANIDA	Danish International Development Agency
DISS	Department of Infrastructure and Support Services
EEOA	Economic Expansion in Outlying Areas
EIP	Employment Intensive Programme
FASE	Food for Assets and Sustainable Employment
FIDIC	Federation Internationale des Ingenieurs-Conseils
FINNIDA	Finnish International Development Agency
GDFI	Gross Domestic Fixed Investment
ICE	Institution of Civil Engineers
IDA	International Development Agency
IHE	Institute of Highway Engineering
ILO	International Labour Organisation
IMT	Intermediate Means of Transport
IRAP	Integrated Rural Accessibility Planning
LBT	Labour-based Technology
LCU	Labour Construction Unit
MLGH	Ministry of Local Government and Housing
MoWHC	Ministry of Works, Housing and Communication
MoWS	Ministry of Works and Supply
NDF	Nordic Development Fund
NEC	New Engineering Contract
NGO	Non-government Organisation
NORAD	Norwegian Agency for Development
NRB	National Roads Board



## Abbreviations and acronyms (continued)

PWP	Public Works Programme
PUSH	Programme Urban Self Help
RDC	Resident Development Committee
RDTS	Roads Department Training School
REEF	Rural Economic Expansion Facility
RMI	Road Maintenance (now Management) Initiative
ROADSIP	Road Sector Investment Programme
SACII	Southern Africa Construction Industry Initiative
SARCIC	Southern Africa Regional Council for Construction
SATCC	Southern Africa Transport and Communications Commission
SFD	Social Fund for Development
SSATP	Sub-Saharan Africa Transport Program
TNA	Training Needs Assessment
TRP-FRC	Transport Rehabilitation Project; Feeder Roads Component
ZNCC	Zambia National Council for Construction

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# 1 OVERVIEW OF CONTRACTING



# 1.1 TRENDS IN EMPLOYMENT-INTENSIVE PROGRAMMES

*Terje Tessem, Programme Director, ILO/ASIST*

## 1.1.1 Introduction

This paper has been written for an introductory session at the Regional Seminar for Labour-based Practitioners. The theme of the seminar and the paper first of all calls for a few clarifications, out of which some could be read as definitions, at least in the context of this paper.

The paper aims at giving some indications on what the recent trends are when it comes to Employment-Intensive Programmes (EIP) in the different sectors with a focus on the work areas covered by ASIST<sup>1</sup>. The theme of the seminar talks about employment-intensive works.

Let us therefore first agree upon what we mean with employment-intensive works. This is a term introduced (by the ILO) over recent years. In the strict sense of the term, employment-intensive projects (like labour-intensive projects) are all those projects where labour is the dominant resource. Whereas these terms and the labour-based term are generally used as synonyms, it is important to distinguish between an optimum and maximum use of labour. The ILO emphasises the sustainability of labour-based or employment-intensive approaches by optimising the use of labour, and ensuring that employment-intensive programmes do not degenerate into “make-work” approaches where cost effectiveness and quality aspects are ignored. We therefore see the purpose of the seminar to promote cost-effective and sound engineering labour-based methods, whilst generating employment opportunities and minimising the foreign capital drain implicit in the use of equipment-intensive methods.

It should be understood that the paper does not aim at giving a comprehensive and a state-of-the-art review of employment-intensive programmes of today. We will rather be looking at the three areas of coverage of ASIST including rural transport, rural roads and infrastructure, and finally, the urban works activities, with an aim at picking up a few trends and issues of concern within these and other employment-intensive programmes. The latter leads us to discuss some crosscutting issues related to the employment-intensive programme development towards the end of the paper.

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<sup>1</sup> ASIST; Advisory Support, Information Services and Training for Labour-Based Infrastructure Programmes



As the paper is delivered as a part of the introduction to the seminar, it will be setting the scene without going too in-depth at the different issues. It should be noted that some of the issues raised are to be dealt with under separate workshop sessions for which other papers will be presented with a further detailed analysis of the specific subject.

### **1.1.2 Background**

The employment-intensive programmes in Africa and beyond form part of development efforts by governments, non-governmental organisations and lending and donor agencies. We should start by asking ourselves why these programmes are being implemented.

Poverty is very present in many countries over the world. Debt servicing is a major burden for many a developing country and following the major financial crisis, more countries are experiencing this problem. Poverty is increasing, and the globalisation of the economy seems to contribute to this development rather than combating poverty as advocated by many scholars. This has led donors and lending agencies to seriously focus their programmes of assistance on the fight against poverty. The donor agencies have targeted the eradication of poverty by year 2015, a very ambitious and bold objective.

Whereas different strategies to fight poverty might be used, it seems like policy makers in developing and industrialised countries alike, mostly turn to public works investment programmes. It is apparent that nothing has been as efficient as the public works in getting people employed as a short-term solution, but is this enough?

These programmes could make a much more substantial contribution to employment creation and poverty reduction. Infrastructure investment programmes implemented without the necessary local capacities, either available or developed to the needs of the programmes, may in the best case be neutral. In the worst case they may even have a negative influence on poverty; we may end up with an expensive and high quality infrastructure with no capacity to maintain it and a heavy loan to service by the country. An optimal use of local resources, including labour, skills, materials, finance, etc., must be established to make sure that the economy and the target populations benefit the most. It may sound obvious that this should happen, but the negative scenario has unfortunately been the case in many countries supported by the said agencies. A change of this situation will in most cases only happen if major investments are made in capacity building at local and national levels, both with the public and private sector.

In order to have any substantial impact on the social and economic development for a majority of people in a country, it is very clear that the infrastructure investments must not be a goal in itself. This does not make sense even if the infrastructure is built by labour-

based methods. It is the provision of social and economic services that make people take advantage of the investments; it enables “us” to pull “ourselves” out of poverty. The infrastructure is thus only a facilitator in providing the priority services for people most in need of it. The emphasis on social (health, education, etc.) as much as on economic (roads, markets, etc.) infrastructure is very clear, and it reflects the fact that for instance good health and education are prerequisites for a development path out of poverty.

Although we do not have exact figures to substantiate our assessment, it is my impression that many programmes have been or are turning in this direction. And when I say programmes, I go beyond those of a country’s provincial programmes, it means programmes based on national policy and capacity developments. It is my belief that this is also reflected in the number and type of participants at this labour-based practitioner’s seminar.

Some development agencies and donors have surely been pursuing these strategies for some time. However, we also see important shifts in policies and strategies of one of the major players in the development field, namely the World Bank (WB). The President has since his appointment been putting poverty reduction at the top of the agenda of the WB. Comprehensive development frameworks are being developed with partner countries and agencies. This follows a major exercise in which the respect for local initiatives and priorities is perceived to be at the forefront of any development programme. It is the intention that funds will be made available for general development purposes, and sectoral investments will only be pursued in as much as they fit into the comprehensive development framework. If implemented, this will have an impact on the assessment of the WB staff. The WB employees will no longer be assessed on their capacity to deliver loans (the turnover), but rather on their ability to develop and follow-up on the agreed development objectives and country strategies. These developments augur well for an increased use of employment-intensive strategies, it should be more acceptable to undertake the necessary capacity building and development work in order to arrive at an increased contribution to poverty reduction. Of course, this is all still in the making, there are many habits and traditions to break, and it is my hope that the WB will succeed in seeing these changes through.

There is now an ongoing debate about freeing developing countries from the built up debt (much of which has not helped countries to fight poverty in the first place). Among the proposals made, and a serious contender to gain some support from the lending agencies and countries, is the one of releasing debt against investments in the development of social services. However, as argued above, a lot of infrastructure will be needed for that purpose, out of which much may, and *should* be done through employment-intensive work programmes.

There are undoubtedly still some dark clouds, not in the horizon, but rather in the sky right above us. There has been a tendency over

recent years that an increasing part of the development aid would feed into employment and businesses in the donor country. This tied aid does of course work seriously against the use of local resources and the development of local capacities at large, and in particular against the use of employment-intensive work methods. Only a further dialogue with the donor countries, and in particular their taxpayers will remove these clouds. Globalisation, however, may mean that the strong competition between countries rather than an agreement on new comprehensive policies for donor support will keep the clouds, at least, passing in the foreseeable future.

### **1.1.3 Employment-Intensive Programmes**

#### **1.1.3.1 Rural Accessibility**

Whereas we have been talking about rural transport more than rural accessibility in the past, for reasons discussed below, I will mainly be using the term rural accessibility in terms of providing access to basic and socio-economic services and facilities. This concept considers mobility and location of services.

#### **1.1.3.2 Community Participation**

Greater emphasis has recently been given to “community participation” in development strategies. The focus has highlighted the fact that development programmes are unlikely to succeed if the intended beneficiaries are not involved in the entire process. This entails that people must be involved not only in the implementation of projects (like as casual labourers), but throughout the process from identification to operation, maintenance and evaluation.

Those of us who have been around for a while may say that there is nothing new under the sun, as many of the popular integrated development programmes of the 1970s had the same intentions of involving “the people”. However, whereas some of the programmes showed good results, others were facing difficulties in reaching their objectives. This is particularly true when it comes to whether investments followed the interest of the communities. The programmes were often a single donor exercise confined to a province or region without the appropriate anchorage in national policies. In addition, donors who were not building their programmes on the same principles often implemented programmes alongside each other even within the same region. Adjacent donor programmes therefore counteracted the “community-based” programmes by diverting attention of key officials back to the more easily controlled and conventional way of delivering projects. Their support was therefore at best only present in theory. Subsequently, the lack of policy support, and adequate planning and implementation capacities strangled many of these programmes. Another problem was the “tied” financial support, which means that funds were pre-allocated and made available only on a sectoral basis. Funds for roads could not be used for footbridges or as credits

for local means of transport. This resulted in resources mainly going to priority development areas as seen by the developers, the “outsiders”. It is evident that this does not promote the community or stakeholder participation strategies, and many a programme have left communities disillusioned about their possible influence on investment priorities and programme development.

### **1.1.3.3 Local Authorities and Decentralisation**

The present shift in policies has placed greater responsibility for rural development on local authorities, local organisations and local people themselves. Much of the development efforts at local level will go through newly established or strengthened local authorities or agencies, including communities. The decentralisation of responsibility, and authority, is gaining speed in many countries. A new era for community participation and stakeholder involvement has therefore been created.

But there is also danger lurking backstage. With dwindling resources for development and increasing demands from the (increasingly urbanised) population, many a government has resorted to this option to avoid responsibility. However, giving responsibility for social and economic infrastructure to the local community is not a solution to the lack of funding within the society at large. While funding is not increasing, inappropriate planning, underestimated resource needs and over-committed local communities are the order of the day in many situations.

### **1.1.3.4 Accessibility**

Access should be defined as (from the Oxford dictionary): “right or opportunity to reach or use or visit”. The accessibility problems can only be identified at local level with a full involvement of the communities, and they should include basic, social and economic sectors like health, education, grinding mills, energy (wood lots) water, markets etc. Accessibility improvements may therefore include infrastructure investments, both motorised and non-motorised means of transport and location of services. In other words, solutions could entail investments in roads, tracks, paths, bridges, etc. (access created by transport infrastructure provision), provision of bus services and donkey carts, water barrows, etc. (access by means of transport), or through the planning of health centres, schools, etc. (access by location of services).

To address the identification of poor access, the ILO has been working with its partners to develop the Integrated Rural Accessibility Planning (IRAP) tool. It involves local communities and authorities in a partnership in developing the local level planning. With an involvement of communities in the identification of access problems on a cross-sectoral basis, priority setting both within and between sectors and development of partnerships in the implementation, some of the problems discussed above may be minimised.



Accessibility, and in particular rural accessibility, is one of the areas that gain a lot from the new decentralisation policies. An important element in this respect is the availability and management of financial resources. A truly participatory process and planning exercise requires that any resources made available should not be directing or forcing the priority setting at local level. Therefore, the trend is now, also with the WB as mentioned earlier, to look at financial regulations to allow for much greater flexibility in the utilisation of loans and grants.

ASIST is working on the further development and introduction of the IRAP tool and its integration into the local level planning strategies in order to support local authorities in their quest for a fair distribution of the support and appropriate and affordable solution to the accessibility problem at local level. It should be noted that this planning methodology and the interest pursued by development agencies does mean that there should be a shift from the focus on infrastructure development to a focus on the provision of services. This does not necessarily mean that the infrastructure work itself will, or should, be given less importance, but rather that the infrastructure's importance in terms of providing the prioritised (transport) services must be highlighted. It is the ability to improve access that must be at the forefront if poverty is to be reduced.

#### **1.1.3.5 Accessibility and Spot Improvements**

This focus on accessibility will again have an impact on the choice of works to be undertaken. I have argued that it is the availability of services that determines the possibility of dragging oneself out of poverty. Accessibility is one way of determining the service level. I now want to define spot improvement in this context and as a more comprehensive term. Spot improvement must mean that it is the spot that is preventing access that must be dealt with. It may be the replacement or construction of a bridge or water crossing for vehicles or alternatively, for people. The investment may even go further in the sense that most of a road, a health centre or a school building will be rehabilitated to provide the service level necessary and identified by the local community. It could still be termed spot improvement. I am happy to note that the WB strategy paper on "Design and Appraisal of Rural Transport Infrastructure" which is being developed for WB programmes, is now being built on these principles.

The main message in this approach is that the transport service is an integral part of transport infrastructure and complementary to it. Many of you have read the book, and agree that "roads are not enough". It may also be that "roads are too much" and that the solution is an improvement to a spot or two on or along that road!

#### **1.1.3.6 Employment and Sustainable Livelihoods**

Sustainable livelihoods - some colleagues have said it is such a difficult word that they cannot even spell it! But what does it mean?

In short and with popular language, one could say that any activity should be looked at in the context of developing a sustainable growth, which enables the individual to continue his/her living in the local community.

Employment and sustainable livelihoods mean that the focus is even more on the employment effects and their possible contribution to sustaining a living for the local populations. Recent developments among donor agencies are that they have put this concept into their policies, and they are trying their very best to operationalize it. The focus is very much on employment opportunities and income generation activities. The infrastructure and transport sectors should be no exception.

#### **1.1.3.7 Implications**

The obvious result of these shifts in development strategies and investments will be that more capacities are needed at local level to plan, implement and, most importantly, to operate new infrastructure. For the employment-intensive strategies, this development should be a major support that must be capitalised upon. It is up to all practitioners to show that this development is a sound one and to be continued.

As poverty alleviation and employment generation now form important parts of development agencies' programmes, there is now a likelihood of greater potential for labour-based contracting. A further support to spot improvement techniques will favour the use of small-scale local construction units, whose mobilisation abilities and costs are much better than those of bigger companies, and whose capacities will be very appropriate for this kind of work.

Regarding employment and sustainable livelihoods; it goes without saying that this calls for employment-intensive strategies to be applied in the infrastructure sectors, whatever transport services in question.

### **1.1.4 Rural Roads and Infrastructure**

#### **1.1.4.1 Types of Programmes**

Employment-intensive approaches to the building and maintenance of rural roads have been "normal" for some time now. Many of us have been working with or visited the Rural Access and Minor Roads Programmes in Kenya which have constructed and are maintaining (to different degrees) a network of more than 11,000 kilometres, the distance from Cape Town to Cairo. It must be noted that this high quality work has been achieved with cost efficient force account operations. Kenya, albeit late has joined other countries in Africa in their drive to increase the private sector involvement in their programme. More than 18 African countries are now working with small-scale indigenous contractor development programmes with a focus on the application of appropriate technology. Most of these programmes deal with the



road sector. There are also serious efforts made to work with other rural infrastructure investments like irrigation, water supply, soil conservation, forestry etc. Some of these programmes will be exposed in further detail during the seminar, whilst information could be made available by ASIST on other programmes. It will not be possible to go into any detailed description of these programmes in this presentation.

It should be mentioned here that the ILO has produced a guide for the “Employment-Intensive Infrastructure Programmes: Capacity Building for Contracting in the Construction Sector”. As you may already know, copies of this guide are distributed to all participants. The guide covers operational issues of contracting development programmes and it is based on a good number of global experiences in labour-based contracting.

The features of these programmes may be fairly familiar to most participants of the seminar. However, there are a few common issues linked to these programmes which deserve some attention and further discussion. Again, some issues will be dealt with in separate sessions and therefore, this presentation should be seen as an introduction to issues that will be presented and further elaborated during group works in the seminar.

#### **1.1.4.2 Are Employment-Intensive Programmes Stagnating?**

Labour-based technology development programmes are being accused for not being able to grow beyond the pilot phase or national demonstration project; they have not gone full scale. Although countries like Botswana, Kenya and Tanzania have had countrywide application of the technology in the road sector, it may still not be the first choice for road construction and maintenance in these countries. This applies even among donor supported programmes albeit the fact that the same donors were advocating the policies of these programmes. For example, in Ghana where a major investment has been made in developing a substantial number of labour-based contractors, they are apparently still struggling to make a major share of the investments available for these contractors. It is a general perception that programmes are not growing, and at least not at the pace they deserve.

#### **1.1.4.3 Constraints in Contracting**

If we are honest with ourselves, and I guess we all want to be, we know that the technology in many cases, and for certain types of work, have proved to be a more cost effective way of providing rural roads. The quality of the work is being provided to the required level. Irrigation programmes have in close co-operation with the communities, provided affordable infrastructure and long term income generation for the farmers. We must agree that both the construction phase and the subsequent maintenance period are providing very valuable employment opportunities and income generation for the local population, men and women who may get a

salary and gain skills, important factors contributing to the reduction of poverty. So what is going wrong?

ILO has been advocating the technology with great support from a number of partners over the years. The biases, which prevent this growth, are supposedly well known, and a medicine has been prescribed for the patients. However, the fact that it has still not worked at large scale may not prove that the hypothesis has been wrong and that the medicine prescribed has not been the correct one. It may be that the doses prescribed have been too small, and/or that the elements working against the growth of the technology have been getting even more resources. The following sections deal with some of the constraints that have been experienced with employment-intensive programmes.

#### **1.1.4.3.1 Contract management and capacities**

It is evident from a number of country programmes that the contract management capacities have been limiting the growth and this is one of the reasons for not seeing major labour-based programmes established. This is true both within the major road agencies and within the local authorities which are the main client organisations contracting road works. A lot of attention has been paid to the training of contractors, and much has been said about the need for an enabling environment. However, without major reorganisations, it has proved difficult to transform the road agencies to efficient contract management units.

We have earlier discussed the decentralisation efforts presently underway in many countries. Whereas this is a very commendable move and does possess real opportunities, it also poses challenges to employment-intensive programmes. It fulfils one of the requirements for the operation of contractors at local level, i.e. that contracts may be entered into and supervision and payments made locally. On the other side it requires the staff to undertake such works. Most client organisations still do not possess such capacities and the development of appropriate levels of construction management capacities within the organisations has proved difficult.

Apart from the obvious reasons (centralised/financial procurement procedures, many small contracts and “lot of work”, etc.), there are also sometimes less obvious problems with attitudes (labour-based produces inferior quality, the cost of the work and delivery period will not be acceptable, etc.). However, I would like to mention a fairly contentious issue, which goes beyond those mentioned above. My question is whether the level of corruption works against the choice of small-scale labour-based contractors. Do they have too small a turnover to be able to provide the necessary incentives for the client organisations? Some evidence of increasing unit costs following the initial training and demonstration periods may point in that direction. In other cases, comparison of costs between labour- and equipment-based construction may indicate that there



is not a full justification for the difference in unit costs. Are the higher unit costs for equipment-based contractors influenced by their need to oil the machinery, a “machinery” which is not his/her own property?

#### **1.1.4.3.2 Consultants**

The difficulties with construction management can be eased by an increased use of local consultants. Whereas the issue has been discussed over the years, it has been a neglected area in most programmes. However, several labour-based development programmes have recently made a move to get local consultants involved. In some programmes, this involves local consultants in the delivery of training and capacity building services. But again, like for the contractor capacity, the appropriate type of consultant is not readily available, at least in rural areas. This has necessitated a development programme to be put in place.

The appropriate consultant for local support will typically be a less qualified engineer or a technician, who would be happy to be based in rural areas and equipped with appropriate tools for contract preparation and supervision. This will ensure that the mobilisation costs will be affordable for the emerging client organisations. We are however seeing a certain contradiction here. The need for quality assessments in order to prepare for spot improvement calls for good skills in order to provide the level of service demanded by the clients. I am sure we will be able to discuss this issue during later seminar sessions.

#### **1.1.4.3.3 Labour-based technology confined to community works?**

Examples from different countries have shown that labour-based techniques can be successfully applied for most maintenance activities on the entire road network. It has also been shown that labour-based technology (with different degrees of supporting equipment) can be a very competitive approach to equipment-based construction on a major part of the road network.

I spent some time in the background to this paper on justifying the works from a social point of view; we were discussing the poverty aspects. I will therefore haste to say that the experiences gained justify employment-intensive works on main roads and alike, works that are a bit more demanding than those identified and prioritised by the communities. The approach is fully justified from an engineering and economical point of view on a larger part of our networks.

However, it is my impression that many partners are confining the technology to the community works area only. For instance, the Rural Travel and Transport Programme of the World Bank's SSATP (Sub-Saharan Africa Transport Policy Programme) has been charged with the promotion of labour-based technology within their organisation, and it is not a major item of the agenda for the RMI, the Road Management Initiative. We also see that several national

road agencies are adopting the same approach, leaving the road agency proper without a full understanding of the potential for the technology whilst their sister local authorities may embrace the approach. Others are, wrongly so, confining labour-based technology to maintenance works only, leaving construction works to be implemented by large-scale contractors.

This definitely works against labour-based technology being widely applied. It takes away a major potential market from the small-scale labour-based contractors and thus hinders growth.

#### **1.1.4.3.4 Diversification and growth**

The focus of contractor development programmes has been with the road sector. Obviously, the potential market is great and it should provide for work opportunities for the contractors in the future. However, due to the difficulties in shaping good contracting environments, the dependency of (largely) one employer, and that a possible market is emerging in other sectors, one could argue that the contractors should be ready for more civil engineering type of work, involving work in rural and urban environments. Indeed, this is happening in a number of programmes already. A key word here is the sustainability, not only of the small-scale labour-based contractor, but also rather of the employment-approach itself. This will again be dealt with under one of the group work sessions of the seminar.

#### **1.1.4.4 Appropriate Engineering Standards**

It is generally accepted that the standards applied in rural road programmes are not the most appropriate. What do we mean with appropriate? If we go back to our discussion about the need to provide access and the transport services for the people in question, we will often find a discrepancy. The standards applied have not been based on these principles, and they will mostly result in far too high standards. Even if one uses the accepted criterion of road deterioration and life cycle costs, it would appear that the construction standards used are of a too high standard.

The present rural road programmes and possible move towards more focus on community roads and in particular the investments in other infrastructure like tracks and trails, call for an improved knowledge about the relationships between construction standards and deterioration, and subsequently the lifecycle costs. This will enable the development of guidelines on appropriate construction standards for low volume roads and tracks. The research programme presently being developed by the Transport Research Laboratory (TRL) and SweRoad consultants in a partnership with ASIST, is aiming at addressing this issue and hence make available guidelines which will justify more appropriate interventions and likely lower costs for such types of infrastructure.



## **1.1.5 Urban Infrastructure**

### **1.1.5.1 Rural Experience and Urban Focus**

The work in the urban sector may seem to be very different from the work in the rural areas and in particular in the rural roads area. However, much of the same principles applied to rural road programmes and in particular rural infrastructure works are being applied for activities in the urban work. Our focus is on low income areas, mainly unplanned or informal settlements. City or town councils have typically neglected these settlements in the past as they were expected to disappear over time when cities grew to accommodate more migrants.

However, this did of course not happen and many agencies are now interested in supporting the development in such areas to reduce the access problems and health and environmental risks they carry.

The main feature of these programmes is that they do not focus on the labour-based approach only, but entail an extensive community management where partnership arrangements between authorities and communities (and their representatives) are developed. This development may in some cases include the strengthening of already established relationships, but it will most likely involve the establishment of new processes or entire partnerships. The formalisation of such a partnership is crucial for the success of any development involving the community and their resources in the development of the settlement. Community contracting is an important tool in formalising such a partnership.

### **1.1.5.2 Community Contracting**

Community contracting was initially mostly seen as a tool of engaging people from the community in the implementation of the works, and mostly in terms of providing paid or unpaid labour. Furthermore, it is acknowledged that community contracting also was used to contract out infrastructure work in difficult and sometimes hazardous environments. However, community contracting now takes the form of an involvement of the stakeholders from the very beginning of a project throughout the process.

Experience from Asia, which will be presented later in the seminar, has shown that small contractors can develop out of these community contracts if the political and economic environment is favourable. Again, with our experience from the rural road sector, this is nothing new. We have earlier discussed and agreed that the road sector can provide substantial work in both construction and maintenance for small scale contractors, and the urban unplanned settlements do provide a good basis for the same.

Experience has now been gained with urban works in a number of African countries. This involves both unpaid labour, like in the self-help operations and food for work activities here in Lusaka under



the PUSH programme, and paid labour. As for rural works, it is important to distinguish between public works and community works when it comes to the use of self-help activities. In an urban setting, this may be even more difficult than in the rural setting. The result may have a serious impact on people's possible contribution during the construction period, but most on the operation and maintenance of the infrastructure. The community contracting methodology aims at clarifying such roles, creating partnerships, and avoiding a stalemate situation as have been experienced with communities in some countries.

Another aspect of the community contracting is that one tries to clarify with the partners the needs of a technically and economically sound development of the area. Experiences with many a socially motivated programme have shown that the technical aspects have not been taken seriously enough, and insurmountable problems have emerged following the low-key investments. Whereas the investment must be affordable for the partners, they must be built on the principles of good quality and cost effectiveness. Supporting agencies have an obligation to educate the partners about these technical and economic principles through the development process even if the development is in the hands of the community.

### **1.1.5.3 Integrated Approach and Activities**

We have earlier discussed that the rural (road) sector does provide a good basis for the urban work. However, one must be aware of the importance of integrating one's activities with other activities and sectors. This includes the already discussed area of community organisation and contracting, but much more on the areas of solid waste management and micro enterprise development.

The solid waste management comes from the fact that any investment in storm-water drainage or access through roads, tracks and paths is not going to be sustainable unless the maintenance problem is solved. Familiar, yes, but in urban areas, the problem with solid waste clogging up the drains may be too much to bear for any organisation, be it a community or a public organisation. Experience has shown that tackling the solid waste is a must for any urban upgrading programme. The linkage to the formation of small enterprises to take advantage of the potential in haulage and disposal, but also income generation from the recycling, is thus an area of great concern for such programmes.

May be this is an experience that should be brought more firmly back to the rural road sector? For those of you who have read the articles on environment in the last ASIST Bulletin (no. 8), it may come to your mind that the focus on environment may also result in direct benefits for the client. These benefits may be much greater than the initial investment costs in taking these considerations into account.



#### **1.1.5.4 The Work of ASIST**

The focus of ASIST's work in the urban sector is now to develop sufficient and much needed documentation of the experiences and training material for agencies wanting to use these approaches. The training material will be mainly for technical staff of urban councils, NGOs and the private sector who will need awareness raising similar to the one we have seen in other sectors. It does entail training on labour-based approaches to work implementation, but at the same time, it will entail much more of change to the mentality, the way one approaches and carries through projects with urban communities wishing an upgrading and a regularisation of their community.

#### **1.1.6 Some Other Crosscutting Issues**

##### **1.1.6.1 Policies, Observatories of Employment, or Labour-based Forums**

###### **1.1.6.1.1 Policy development**

I have not talked much about policies up to now. This is not meant to give any indication of policy development being second priority. Policy work forms an important part of all components of the employment-intensive programmes. As mentioned in the background and under community participation, it is my belief that much of the development work (at national levels but also at provincial and district levels) are failing largely due to the lack of appropriate national policy developments. It also means that programmes are not growing due to the lack of these policies. Other development programmes will counteract the strategies pursued if policies are not developed and adhered to. An adequate policy development is therefore one of the necessary pillars on which to base development programmes.

On a general note, we may see that programmes can be effective in terms of producing the agreed outputs and achieving the immediate objective at district or provincial level. However, when it comes to the overall development objective of the programme, we may find that the efficiency is not good, the strategies are not working due to lack of appropriate national policies. Our investment is not yielding the results we would like to see, and as mentioned in earlier sections, we may even see a negative outcome of our interventions.

Appropriate decentralisation policies are a must for any attempt to do any structured accessibility work. The complementary development of rural transport or accessibility policies is furthermore a necessity to sufficiently agree upon common targets for access interventions and develop a framework within which the IRAP tools and other planning methodologies will work efficiently.

We have earlier discussed the problems facing contracting development programmes. The operational environment has been dealt with at length in the earlier mentioned guide for capacity

building in the construction sector. I will here again mention the need to look into different policy issues, like investment policies and secured financing, procurement policies and the role of the national construction industry, employment creation policies, labour policies, training policies, decentralisation (of agencies) policies, etc. Much experience has been gained in this area, particularly related to roads and rural infrastructure programmes. The type of work to be done in the urban environment will require much of the same issues, but we will also later in the seminar touch upon some different policy issues and specific subjects related to the urban environment.

We will have further presentations and discussions on contracting development programmes and key issues related to contracting later today. This will give us a chance to adequately address the related policy issues during these sessions.

#### **1.1.6.1.2 Observatories of employment, or labour-based forums**

ILO has for some years tried to focus its work on the policy development work. Important subjects here are the necessary information gathering, development of local (national) knowledge, and a capacity to seriously support the development of these policies. National vehicles have been built to carry this load. These take somewhat different forms, but they basically aim at filling the same role.

Observatories of employment, EIP policy units or labour-based policy promotion units have been established in some countries. (In the Franco-phone part of Africa, they call them “Cellules HIMO”, labour-intensive units, which is nothing else but such policy promotion units.) These units are mostly established within the planning and finance ministries in order to have an impact on the policy development work. In other countries, labour-based forums have been established within technical ministries with an aim to support policy and technology development work within the ministry. Other forums work on the promotion of employment-intensive strategies both within their ministry, with other ministries and with the private sector.

It is my belief that these units are crucial for the support to policy development and expansion of the employment-intensive programmes. They are necessary if the full potential for the use of labour-based technology should be realised.

#### **1.1.6.2 Labour Issues**

Labour-based technology is very much dependent on the availability and performance of labour. Indeed, the future is fully based on a successful involvement of people in construction and maintenance work.

Although labour issues have been a concern in some countries in past programmes, it has not been too much of a problem. Agencies,



who have mainly been working on programmes using force account operations, have been alert and ready to deal with issues that have come up. Whether it has been to the satisfaction of all people is another question. However, with the move to labour-based contracting, the need to guide employers, and labour and unions alike, has been accentuated. Private sector involvement and the competitive environment in which contractors work, do open for possible labour abuses. This should be reduced to a minimum. In addition, ILO firmly believes that an improvement in the labour practices and working conditions will have a positive impact on the productivity rates and the long-term viability of labour-based operations.

It is in this context that the work on the Labour Policies and Practices Guide was developed. We are now in the process of making this guide widely available (it is free!) and promoting it with partners in a number of countries. We would eventually like to see that it is contributing to the development of appropriate policies for the growth of employment-intensive programmes beyond present levels. It should also contribute to a process where labour laws and regulations are being adjusted to allow for and promote the efficient use of labour-based technology.

### **1.1.6.3 University Network**

It has long been recognised that among one of the strongest biases against labour-based technology, is the lack of awareness and understanding among policy makers, managers and engineers. Leaders have not been confronted with and trained in employment-intensive technologies during their higher education. It is evident that this lack of recognition among the learning institutions has slowed down the process of making the labour-based technology acceptable at policy and operational levels.

One way of addressing this problem is to support universities and technical colleges to introduce technology choice into their curricula. Albeit having little influence in the very short-term, this is an efficient way of preparing people for choices to be made when they move into senior decision-making positions later. It will have long-term effects and it will have an effect at the level which seems to be seriously lacking in many countries (ref. our earlier discussion on the success at project level but lack of expansion to national programmes).

Several universities from a number of countries over Africa have joined the African Universities Network. The aim of this work has been to share information and experiences with the introduction of the employment-intensive technologies into the curricula, and on research work at the different member institutions. The focus has been on the civil engineering faculties and departments. ILO has provided material for undergraduate and postgraduate courses in a partnership with IHE (the University of Delft). A new set of material is now available for these courses. IHE also runs annually



an orientation course, which is meant for decision-makers and planners at national institutions, development agencies and alike.

Parallel work is underway with the regional and urban planning departments at a number of universities. However, this does so far not form part of the responsibilities of the African Universities Network. The focus here is to share information on the development of rural accessibility policies, programmes and tools, and to involve the universities in such development work undertaken in the different countries.

### **1.1.7 Closing Remarks**

I started off this presentation clarifying the aim of the paper. We agreed that it would be dealing with a number of issues being focus areas of the EIP, but only in as much as the word trends allows. Our dictionary tells us that trend means something like general direction and tendency, and by covering such a big number of issues and areas of EIP involvement, it would only be possible to give some directions.

We will, as from this afternoon, be going more into detailed discussions on many of the issues dealt with here. I hope that the paper has been providing some information, may be not only trends but also inputs to the trend setting <sup>2</sup>, which this seminar should be aiming at. My final wish is that this trend setting is not only treating labour-based technology as a fashion, but that our trend setting will have long lasting effects on the efficiency of employment-intensive programmes. With the present economic policies and developments, we “see” the need for such programmes beyond the foreseeable future.

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<sup>2</sup> Trend setter: person who leads the way in fashion

## 1.2 CONTRACTING DEVELOPMENT — KEY ISSUES

*Peter Bentall, Consulting Engineer, UK*

### 1.2.1 Introduction

Through its study initiatives in early 1970's the World Bank and ILO spearheaded the technology change from predominantly equipment-based construction to a labour-based emphasis. The first targets were government direct-labour (force account) operations in rural road maintenance with the Kenya Rural Access Roads Programme (KRARP) being one of the first full-scale implementations. With a growing realisation that most direct-labour organisations lacked the economic and technical effectiveness to achieve the desired and urgently needed improvements in the road network condition, proposals were made to move into private sector operations. To this end a labour-based contractor component for feeder roads rehabilitation was included in the Fourth Highway Project for Ghana, which commenced in 1986, based in the Department of Feeder Roads and with a Technical Assistance team provided by ILO (funded by UNDP). Based on its initial success and the experience of other early projects (e.g. Madagascar) not only was the Ghana programme expanded rapidly but other projects in Africa and Asia quickly followed. Several of these were established on the Ghana model while others included modifications and variations. They were focused still at rural road rehabilitation and/or maintenance and all included some component of contractor training. Most also had an initial input of Technical Assistance, in much of which ILO had some involvement.

As part of the efforts to disseminate the ideas and the lessons being learned from the various projects the ILO initiated the Regional Seminars, the first one being held in Mbeya, Tanzania in 1990. Papers and discussions on small-scale labour-based contracting and the associated interests in tools, equipment, and contract procedures have been regular features of subsequent Seminars, of which this one in Lusaka is the seventh.

In 1995 ILO commissioned a six-nation Africa study of fact finding and data collection to look at the various similarities and differences within the contractor development programmes, with the objective of highlighting common issues and problems. For the first time this included a visit to South Africa where the development of labour-based technology in construction had already taken a prominent place in the country's policy directives, with moves towards targeted procurement.

The study was intended to be the first phase of an overall objective to produce a 'Guidelines' document to assist and encourage those who are involved in this technology and in the development of the private sector. At a Workshop in Zimbabwe towards the end of 1995 a decision was taken to proceed (subject to available funding) with what was proposed to be a two-volume document covering (i) institutional issues and (ii) operational issues. In the event funds to produce the document in the way it was envisaged were not forthcoming and it was eventually decided to try to consolidate the findings of the original study into a single *Guidelines* volume which concentrated more on the practical issues drawing widely from the experience of the many projects in Africa, Asia and Central America. Its publication follows that of 'Employment-Intensive Infrastructure Programmes: Labour policies and practice'(ILO 1998) and it is seen as a companion volume with some common material.

### 1.2.2 Overview of Project Experience

With no previous experience available the Ghana project was established on the principle of selecting small locally-based contractors, preferably with some previous involvement in civil construction or building work, for training (together with 3 or 4 supervisors each) in labour-based technology and contracting management. Having few, if any, resources themselves, the project provided sets of appropriate equipment (value \$150,000) for the contractors to acquire over a 4-year period under a financial agreement with the local construction bank. Work was guaranteed to the contractors, who proved competent in their trials, to enable these financial obligations to be met, based on the work undertaken under fixed rate contracts, which included full allowance for the equipment costs. The roadworks consisted of the full rehabilitation of rural gravel roads in the cocoa growing areas. This clearly was a very contractor-supportive approach which did not necessarily appeal to the 'free market forces' purists who believe that the realities of the contracting world should be applied at the earliest stage. In fact the failure to introduce competitive bidding after the initial project period in Ghana led to the withdrawal of World Bank support (though several other donors were happy to see existing arrangements continue).

Some subsequent projects followed a similar pattern with variations. Most tried to reduce the financial commitment for the equipment and in Tanzania initially it was (mistakenly) decided to rely on the open market for plant hiring arrangements. One project in Uganda (Ministry of Works) was established for petty contractors carrying out routine maintenance only whereas the Ministry of Local Government later decided upon a modified Ghana model with 14 contractors commencing training in 1995. Zambia (UNCDF funded) followed in 1996 with a similar approach after initially formulating the project as equipment-based. Both have equipment funding schemes operating.

After nearly 20 years as a very successful direct labour operation the Labour Construction Unit in Lesotho turned to the private sector with a phased training approach. Only contractors themselves were instructed in road maintenance activities with the idea that the most successful would return later to complete a course on rehabilitation (ROMAR followed by ROCAR). They were to be responsible for the site training of their own supervisors, and could opt to buy some basic equipment but without any guarantee of work continuity, since a form of competitive bidding was introduced immediately.

In Kenya the contractors chosen were some who were already well established as equipment-based operators and for whom, therefore, success as labour-based contractors was not essential for their future survival, as it was in some other countries. In Zimbabwe, in 1991, after a sudden change of heart in favour of a labour-based approach, the initial (Danida) project was operated by force account units. This has converted to the private sector comparatively recently (1997), again largely based on the Ghana model. Both full rehabilitation works and single-person maintenance contractors are involved in the programme. An equipment loan arrangement has been set up based on a five year repayment period.

In western Sudan seven local contractors are being trained for the construction of a 86km national rural highway, again based on the Ghana training model, and in this case local consulting engineers have been engaged as the Project Engineer with ILO technical assistance. Eight small-scale contractors are engaged on a widely spread programme in the Zambezia province of Mozambique based on similar principles although with international consultants providing the technical assistance.

In some francophone countries a different approach has been used - AGETIP (Agences d'Exécution des Travaux Publics pour l'Emploi) which was first established in 1989 in Senegal as a non-profit NGO. Its objective is to act as the 'owners representative' for programmes of small to medium sized labour-based public works, managing all aspects of the projects. Major funding is channelled through the Agency rather than normal government organisations and staff operate under private sector conditions. In general AGETIP has used already established contractors rather than training emerging ones and, with one objective being an increase in employment, the effective and productive use of labour has not been a main priority. Being also outside the formal government structure there are concerns about the sustainability of the arrangements, but they have certainly been successful in project implementation. A fuller critical analysis of the approach is given in a World Bank Technical Paper 347<sup>3</sup>.

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<sup>3</sup> Expanding labour-based methods for road works in Africa. Elizabeth A. Stock; Jan de Veen, 1996

More has been done at the political level in South Africa than elsewhere with the decision to use public sector procurement as an instrument of social policy. The use of labour-based technology is encouraged and supported wherever possible through specific measures of targeted procurement which aims to provide employment and business opportunities for marginalized individuals and communities.... On small contracts direct preferences are accorded to targeted enterprises to tip the scales in their favour. On the larger contracts tenderers compete on the basis of both the product and the process with resource specifications being used to define social objectives and their associated acceptance criteria<sup>4</sup>. Even in its early stages this policy is proving successful in correcting uneven wealth distribution and in addressing poverty alleviation and job creation. More importantly it has gained wide acceptance within the construction industry and it has moved labour-based technology from a project orientation to a national programme basis.

This overview is necessarily brief and only illustrative and for fuller descriptions and details of most ongoing projects the ASIST Bulletins provide an excellent reference. Even these, however, are by no means comprehensive and it remains a sad fact that few project experiences are written up and publicised in a way which will convert the political decision makers or even some of the more traditionally minded technocrats.

### 1.2.3 Key Issues

With the accumulated experience of this variety of projects the key issues concerning labour-based contracting have been summarised in the *Guidelines* document, as perceived by the authors to be the current position. Inevitably any publication relating to an ongoing and continuously evolving situation is dated and quickly superseded by new events, but until there is a major shift from so much 'project-based' implementation to a 'national policy' approach most of the key issues will remain relevant. They are discussed fully in the *Guidelines* and illustrated with as much project experience as possible. This paper can only summarise the most important (in the view of the author), as being,

#### 1.2.3.1 Political Will

This remains the single most important issue. Most countries (with the notable exception of South Africa) are still only paying political lip-service to the expansion to its full potential of labour-based contracting with all its economic and social benefits. Most activity is still project orientated rather than being part of a national programme.

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<sup>4</sup> The use of public sector procurement as an instrument of social policy. Ron Watermeyer, 1998



### **1.2.3.2 Enabling Environment**

The construction industry has a major role to play in the economic development of all countries and labour-based technology needs to be seen as a viable, integral part of the industry and not, as is so often the case, as a specialised, separate activity confined to 'minor' works.

### **1.2.3.3 Client Capacity**

There is still very much a 'one Client' situation (while the technology operates almost entirely in rural roads), and the capacity, and traditional (force account orientated) attitudes, of Client organisations are a serious constraint to the wider development of labour-based contracting.

### **1.2.3.4 Donor Attitudes**

So much of the development implementation remains donor-funded which has associated conditionality, such that government officials often appear to be ruled by donor demands. In some cases, it is suggested, this is because governments themselves have no agreed, established policy on issues such as labour-based construction which donors can readily support.

### **1.2.3.5 Engineers' Training**

Traditional training for engineers at the higher learning institutions has generally been slow to adapt to the wider 'appropriate technology' approach and many senior engineers remain sceptical of this 'primitive' technology, with its 'colonial' overtones.

### **1.2.3.6 Role of Local Consultants**

There has been a major emphasis to date on contractor development and training programmes with little attention being given to the need to assist local consultants. Client organisations are being 'downsized' and restructured to 'Road Agency' operations, and the role of the local consultants will become increasingly important. Funding agencies, too, still show great reluctance in using the services of many experienced and knowledgeable local consultants, preferring the expatriate technical assistance which has often proved to be of doubtful quality.

### **1.2.3.7 Expanding the Work Base**

Despite its potential for involvement in many areas of development labour-based technology has remained primarily in the rural roads sector. Some urban infrastructure; irrigation; agriculture; and forestry inventions have been attempted but the horizons need to be expanded through innovation and imagination. VTTP (Village Travel and Transport Programmes) may be a possible example.

### 1.2.3.8 Contractor Support

Views of the level of support needed by small-scale contractors within the development programmes vary. Areas for discussion include,

- contractor selection (established or newly emerging)
- access to credit/tools and equipment/continuity of work
- competitive bidding and the open market
- contract documentation (traditional or appropriately written) including issues of bonds/guarantees
- 'technology-neutral' design and construction approach
- targeted procurement policies
- labour policies and practices

### 1.2.3.9 Training Interventions

Most of the contractor development projects have included a heavy investment in formalised training using at least a 3-phase approach. There are other views which suggest that the private sector should take care of its own training needs and that the task of government is to create the environment in which enterprises can flourish. Labour-based technology is still largely seen as a specialist activity for the few rather than one of the necessary construction skills of the many.

## 1.2.4 Some Conclusions

A few general conclusions have been noted from the project experience within the study period,

- Labour-based contractor development had a successfully encouraging start and initially there was an expansion of activity through many sub-Saharan African countries and into Asia.
- However, although many of the subsequent projects were based on the initial approach, lessons and experience learned from previous projects have not always been applied. Many 'pilots' have been formulated to prove the possible viability of using small-scale contractors, when this has been well established for years.
- Training materials and manuals have often been written 'from scratch' when so much already exists.
- Individuals and external consultants making up the technical assistance components have a tendency to promote their own favourite approach to practical implementation without sufficient emphasis on changing the political climate and creating the enabling environment.
- There is a need to concentrate on 'selling' the labour-based concept. This subject is addressed in the companion paper.

## 1.3 CONTRACTING DEVELOPMENT — KEY ISSUES FOR THE FUTURE

*Hamish Goldie-Scot, Scott Wilson Kirkpatrick, UK*

Peter Bentall's companion paper looked *back* at the way in which labour based contracting has developed over the past 20 years, and identified some of the key issues that need to be tackled as this process continues. By contrast, this paper looks *forward*, not only to the resolution of these issues, but to a broader view of what the future may hold.

Starting from the premise that as advocates of labour based technology (LBT) we have been less than successful in 'selling' the concept to clients, a framework is set out for identifying and understanding the varied and sometimes conflicting facets of future trends. Within this context, a case is then made for the promotion of an approach that is centred less around the distinctive 'features' of LBT and more around the resulting practical 'benefits' to key decision-makers. It is proposed that our efforts should be directed at identifying and developing 'gaps of dissatisfaction' that will lead decision-makers at all levels to have a personal stake in its success.

In order to put such an approach into practice, some labour based practitioners will need to acquire and develop the new skills and outlooks necessary to look beyond our current limited horizons and learn to relate comfortably with a much wider range of people and ideas. If we can do this, then there is scope for greatly increasing the role that labour based contracting can play in meeting the ambitious targets for poverty reduction set by the international community for the 21st Century.

### 1.3.1 Introduction: A Story

*Soviet leader Nikita Khrushchev used to tell of a time when there was a wave of petty theft in the Soviet Union. To curtail this the authorities put up guards around the factories. At one timberworks in Leningrad, the guard knew the workers in the factory very well. The first evening, out came Pyotr Petrovich with a wheelbarrow, and on the wheelbarrow, a great bulky sack with a suspicious looking object inside.*

*"All right, Petrovich" said the guard, "what have you got there?"*

*"Oh, just sawdust and shavings," Petrovich replied.*

*"Come on," the guard said, "I wasn't born yesterday. Tip it out." And out came nothing but sawdust and shavings. So he was allowed to put it all back again and go home.*

*When the same thing happened every night of the week, the guard became frustrated. Finally, his curiosity overcame his frustration.*

*"Petrovich," he said "I know you. Tell me what you're smuggling out of here, and I'll let you go."*

*"Wheelbarrows, my friend," said Petrovich, "wheelbarrows"*

In the same way as the guard missed what was really going on by concentrating on the sawdust and shavings, could it be that we have allowed ourselves to miss the real role that LBT could play in making international development efforts more effective? We may know how to change the design of a shovel handle to achieve an 8% increase in productivity, yet many labour based sites are operating at only 30% efficiency. We have devoted enormous efforts to applying LBT on rural roads, yet have hardly started to see how it can be used in the more complex but ultimately more significant urban context. And finally, as we enter the current post SAP/ERP focus on poverty alleviation we risk conveniently disregarding the evidence that many clients are content simply to follow the money and adopt the latest donor fad. The rhetoric of participatory planning, stakeholder management, poverty focused implementation, private sector participation and performance monitoring can at times be little more than a convenient veneer that masks the reality of a residual 'top down' approach that will in many cases fail to deliver the anticipated long term benefits. Many countries desperately need productive and sustainable employment opportunities for the poor, yet we are often guilty of offering little more than yet another 'pilot scheme' generating a few jobs on rural road projects of dubious lasting value. We have been slow to learn from South Africa's attempts to mainstream LBT, and even slower to learn from Asian experience.

### **1.3.2 The Future Context**

Leaders attending the World Economic Forum and the Southern Africa Economic Summit have recently sought to explore new ideas about how best to "take hold of the future before the future takes hold of us". One approach they have followed entails the use of a framework within which to better understand and prepare for the future. It uses the 6 facets of a cube to describe a complex future that is simultaneously Fast, Urban, Tribal, Universal, Radical and Ethical.

#### **1.3.2.1 Fast**

Throughout the world, change is occurring at an accelerating rate in all aspects of society; change that is not only technological and social, but also economic and political. As much of this change is unpredictable, planning processes have to have flexibility built into them to allow more rapid response to and preparation for changing political and economic environments. Wise governments are taking steps now to prepare themselves for possible changes of direction in the future. One of the implications for infrastructure investment is that major investments could prove unduly risk-prone; a better approach may be to adopt a more cautious phased approach, which

builds progressively on demand and success. This in turn suggests a more dispersed investment pattern favouring small locally based contractors. It will also require a change of thinking on the part of donors, who still like to know in advance exactly what they are paying for.

#### **1.3.2.2 Urban**

Within the next year, more than half of the world's rapidly rising population will be living in cities. In many African cities half of the urban population already live in unplanned low-income settlements with no formal access to basic services. In the short term this might provide a useful source of desperately cheap labour able to fuel rapid economic growth, but the social, environmental and political situation could rapidly deteriorate. The causes of urbanisation vary greatly, but can in Africa be broadly characterised as a retreat from agriculture, while in Asia it is more closely linked with industrialisation. Although urban areas carry an enormous potential demand for the provision of infrastructure, it will be necessary, particularly in informal settlements, for planners to work very closely with local communities if services are to be provided in a sustainable manner. Again, this scenario will at the local level tend to require small community based contractors using LBT. At the same time larger contractors, also potentially labour based, will be required to develop and maintain related core networks of water-supply, drainage, sewerage and roads.

#### **1.3.2.3 Tribal**

Everybody needs a sense of identity and belonging, and this can become a craving in a world characterised by increasing complexity and injustice. While such forces can be exploited negatively by some, it can also be harnessed in more positive and creative ways by seeking a better understanding of the communities within which we work.

In many ways those of us attending this seminar constitute a tribe, with a well defined but unspoken hierarchy, norms of what is acceptable behaviour, and perhaps even a hint of disdain for 'outsiders'.

#### **1.3.2.4 Universal**

At the same time as being increasingly tribal, there is also a tendency towards being universal. International communications and global business practices mean that ideas can be rapidly shared across the world. Much of the information used to prepare this paper has been downloaded from the internet. Again, we can use new information positively, by exercising judgement about the ideas that we follow, or negatively by blindly following practices that may be appropriate elsewhere, but are not suitable in a different socio-political context. A positive feature of increased communication is that we can be somewhat more confident that good ideas, like good

news, will spread. Perhaps we can look forward to a time when it will no longer be necessary for experts to come in and 'animate' communities, but that communities and even governments will animate themselves after hearing first hand what has been achieved by others who have shown initiative.

### **1.3.2.5 Radical**

With the reduced influence of right/left politics and the diminishing power of central government, single issue groups are able to wield increasing power in many countries. Because of universalism, a radical group operating in one country can now have a profound influence on working practices in another. All of us are aware of how externally driven issues such as workers rights, environmental protection and gender equality have affected the design and implementation of projects with which we are associated. We can expect to see further examples arising and would do well to keep in touch with new ideas and prepare for them creatively and appropriately rather than simply blindly follow donor requirements.

### **1.3.2.6 Ethical**

Despite, or possibly because of, the growing complexity of the world, there is an increasing desire in many areas to see a more ethical approach to the way in which people relate within and between communities, organisations, and countries. At the international level there are growing grass roots movements such as Transparency International dedicated to curbing both international and national corruption. Meanwhile in the workplace many managers are learning that retaining and motivating key staff means more than money, as staff need to be continually inspired and encouraged.

Most people already see the world as Fast, Urban and Universal, but how many people in a nation or indeed an organisation need to be very Radical, Ethical and Tribal to bring about dramatic and far-reaching change? Surprisingly, research suggests as little as between 0.5 and 2%. A useful and relevant example is the Jubilee 2000 campaign to cancel the 'unpayable' portion of third world debt. Three years ago the campaigners were dismissed by many as cranks, yet today Western leaders are vying with each other to appear the more committed to debt cancellation. There remains a long way to go until the World Bank/IMF Heavily Indebted Poor Country Initiative meets the standards set by Jubilee 2000, but with a growing world-wide groundswell of public support for such radical action, it is only a matter of time before governments respond.

As debt cancellation programmes take effect, linkages will be made with increased spending in the social sectors. In Uganda, a Poverty Action Fund has already been established to ensure that the funds released are properly mobilised in a transparent manner for primary education, primary health, water, road infrastructure and

agriculture. The sums involved are potentially very large. In Uganda the debt per person is about US\$ 200, compared with a GNP per person of US\$ 300. In Mozambique these figures are approximately US\$ 350 and US\$ 100 respectively. Even if only a small proportion of such debts are cancelled, very significant resources will be released to national budgets. Are we taking steps now to influence spending plans and develop the capacity to implement the required investment in and maintenance of infrastructure?

### 1.3.3 Sales

As labour based practitioners we have at times been slow to understand and predict the market, preferring instead to bully our way into it. Our attempts to win over key decision-makers have sometimes focused too much on 'features' of the labour based approach rather than on 'benefits' to those individuals and their institutions. It is not surprising that the resulting commitment by many clients to the approach remains shallow and sceptical.

Any good salesman will tell you that listing features of a 'product' (in our case, LBT) does little to sell it. In fact, the listing of features is generally regarded as a counter-productive approach. Rather, the key is to understand and communicate effectively with the 'buyer' (in our case, perhaps, a government official) so that it is the buyer who ultimately defines his or her needs and where and why the use of labour based technology is of benefit to him or her, as well to others.

*Situation:* The first stage in the process is to understand the *situation*, the general context within which our potential buyer is operating. This requires good prior research, so that the buyer feels that the questions already reveal an appreciation of his needs. Otherwise, too many questions can bore or irritate the buyer.

*Problem:* It is then time to explore *problems*, difficulties or dissatisfactions as seen from the perspective of the buyer. This will soon start to uncover implied needs.

*Implication:* At this stage it is important to hold back from offering solutions, and to concentrate instead on asking *implication* questions to make the implied needs larger and more urgent. This is known as increasing the 'gap of dissatisfaction'. We all know that it is not enough to know what 'should' be done; it often takes something else to convince us that it 'must' be done.

*Needs payoff:* Now, when the buyer is fully agreed that the problem is serious enough to justify action, is the right time to encourage the buyer to focus on solutions and describe the benefits that the solution would bring.

This classic approach, called the S.P.I.N. model, is not a formula, and does not always have to be conducted in this sequence. However, in most successful sales the process follows the Spin sequence. During the course of this week, it would be interesting for

delegates to explore further how this approach can be applied to the promotion of LBT, using personal experience and the ideas contained in these two papers to think of creative ways to increase the 'gap of dissatisfaction' of key decision-makers.

### **1.3.4 Conclusion**

Using the F.U.T.U.R.E. view of the future and the S.P.I.N. approach to the 'selling' of labour based technology are simple examples of how valuable lessons can be learned by communicating more effectively with experts from other disciplines. While the F.U.T.U.R.E. view gives us a glimpse of the massive untapped potential that exists for LBT, the S.P.I.N. sales approach provides a useful practical tool to go out and convince decision-makers of the need to adopt this approach. The future starts now.

### **1.3.5 Documents and Web Sites Referred to:**

#### **Understanding the Future**

"Futurewise", Dr Patrick Dixon, Harper Collins, 1998

ISBN: 0002740079

<http://www.globalchange.com/>

#### **World Bank Rural Roads**

[http://www.worldbank.org/html/fpd/transport/rural\\_rd/rural\\_ti/ri\\_al.html/](http://www.worldbank.org/html/fpd/transport/rural_rd/rural_ti/ri_al.html/)

#### **Debt relief**

<http://www.jubilee2000uk.org/>

<http://www.jubilee2000.org/>

#### **Transparency International**

<http://www.transparency.de/>

#### **Selling Strategy**

"Spin Selling", Neil Rackman, Gower Publishing Limited; 1995

ISBN: 056607689





## **2 CONTRACTING IN ZAMBIA**



## 2.1 THE NATIONAL COUNCIL FOR CONSTRUCTION

*Phillip Turner, President, Association of Building and Civil Engineering Contractors, Zambia*

Since the liberalization of the economy in Zambia at the beginning of the 1990's government has introduced a cash budget which has concentrated on recurrent expenditure and not on capital projects. The demise of the parastatal sector, which traditionally invested in capital projects, left a vacuum which after ten years is yet to be filled. The industry has therefore been in recession throughout the last decade putting most companies relying on Zambian construction market into terminal decline.

Investment by local companies in plant and equipment, training and staff development over this period has been almost non-existent. This has left the industry with almost no capacity to perform to acceptable standards in any respect.

Public sector investment, mainly through government donor funded projects, are concentrated on rehabilitation of public infrastructure such as roads, schools and health centres. These are spread out over the whole country including some remote rural areas. Due to the lack of capacity by so called large Zambian contractors, who traditionally carried out works throughout the country, and the lack of locally based small contractors, interest in such projects is minimal and prices are high. Activity by Zambian companies is therefore largely confined to the main centres of population.

The larger contracts of road rehabilitation in the urban areas and inter-provincial roads require a large outlay of capital and plant and equipment from the contractor bidding for the work. Most Zambian contractors fail to qualify on grounds of lack of bid security, qualified staff, track record and lack of plant and equipment. This work is, therefore usually undertaken by foreign companies.

The paper will be directed towards promoting the successful participation of the Zambian contractor in all types of work in Zambia. In order to do so we want to consider some major obstacles that currently hinder the growth and development of local contractors and make suggestions which may help to ease these problems.

### 2.1.1 Access to Information

Information on all aspects of construction is not readily available. The administration of the industry is fragmented and diffused through numerous Government Ministries, Donor Organisations, lending institutions and professional and trade organisations.



Equally the true capacity of the local industry is unknown and marketing of local goods and services is poor.

Administration must be centralised with a focal point that generates the information to help local contractors, manufacturers, suppliers and consultant to provide their Clients with the best possible services and maximise the use of local resources.

Information must be centralised, collated and published on a very regular and widespread basis to the entire industry.

The sort of information which would be useful is:-

- Future projects
- Availability of local products and services
- Availability of funds to assist in building companies
- Legislation effective construction
- Availability of training schemes

This is a central role of the newly formed National Council for Construction

The Council must extend its membership currently confined to Architects, Surveyors, Engineers, large building companies and Government, to encompass small contractors, manufacturers, suppliers and training institutions. The formation of a lobby group incorporating all players in construction should have a considerable influence in promoting every aspect of the industry.

### **2.1.2 General Legislation Affecting Business Start Up.**

In most sectors of the economy, but particularly construction, the expertise to carry out the core business is seldom complimented by sufficient business knowledge to carry out the administration and legal requirements necessary to get the company up and running.

In Zambia the Government is putting in place and enforcing up to date tax systems based on those found in Europe. The tax net now substantially covers all major enterprises involved in construction. We must however, ask ourselves whether first world systems of taxation and company legislation should be applied to emerging Third World businesses.

Fear and suspicion of the tax authority is common in the so-called informal sector.

The necessity to register a company and advise the tax department of its operations is seen as an evil by small companies, which should be avoided at all costs. This ends up inhibiting growth.

Whilst business training may help in the long term, the obvious answer is to look at the way legislation affects new companies.

In Zambia registering a company will cost around \$500. This is a significant cost to a new company and prevents informal organisations from progressing further.

Income tax on wages below the poverty line should be removed. In Zambia the income tax threshold is less than \$40 per month. If the employer does not levy this tax he is breaking the law and is liable to severe penalties.

A grace period for formal registration and tax is absolutely essential to allow companies to form and grow.

A further problem is the level of duty on imported materials, plant, equipment and spare parts. In most cases these items are not manufactured in Zambia so they are not set up to protect local industry. They are punitive. They increase capital costs to contractors, increase the cost of construction, and in respect of plant and equipment reduce competitiveness against foreign companies who are normally allowed duty free status on such items purchased from a low cost area

### **2.1.3 Tendering Procedures**

Tendering procedures in Zambia often disadvantage local companies. They should be simplified with a view to promoting small and medium contractors to participate in the bidding process.

All public sector works are let through the Central Supply and Tender Board. The industry would strongly advocate a major review of this organisation and re-appraisal of the role it has to play in an industry already well served with a private sector consultancy base short of work and more than capable of conducting the majority of functions carried out by the Tender Board.

We conducted a workshop with the Tender Board in May 1998 where their operations were discussed in detail and after which we made the following recommendations:

#### **1. Future works**

We would like the Tender Board to publish a list, possibly quarterly, of works coming out for tender stating the Client, the Donor, the likely date of tender, the start date, duration and value. This would greatly assist in forwarding planning.

We note the list will be for guidance only as such programmes are seldom adhered to.

#### **2. Prequalification**

##### **2.1 Registration of contractors**

We would like to assist in the re-registration of contractors. Once complete we would like (as far as possible) these lists to be used in selecting bidders.

##### **2.2 Issue of documents**



As far as possible, given the terms and conditions imposed by donors, we would recommend documents are only issued to companies falling within the required category for the project to be tendered for.

### 2.3 Qualification only once

When a series of similar projects is being run (e.g., Roadside, World Bank Schools, etc) we would recommend qualification is only made once a year. This would remove the necessity to qualify for each separate tender.

### 2.4 Checklist

We recommended a checklist be included in future tender documents to reduce the number of contractors failing to provide substantive bids as a result of a simple oversight.

### 2.5 Disqualification of bidders

We recommended that the reasons for disqualifying tenderers are made public. This will greatly aid transparency and help to minimise similar failures by all tendering companies in the future.

### 2.6 Clarification of tender requirements

Within the documents we would recommend that it is clearly stated whether failure to comply with a certain requirement will result in either disqualification or impair the quality of the bid.

For example:

- i. If a document requires the audited accounts of a company for the last five years, and the company is only two years old will this mean the tenderer is not providing a substantive bid and will be disqualified?
- ii. Where a foreign exchange element is included in the documents how will the proportion of payment required by the bidder to be paid in a foreign currency be viewed by those evaluating the tender.

## 3.0 Capacity building

### 3.1 Local involvement

On all works, but particularly foreign funded projects (either loan or grant), we would like a review of the current stringent condition required by donors in order to foster greater participation by local companies.

Such items for review would include:

- i. Local preference for Zambian contractors

- ii. Ease bonding requirements
- iii. Reduce turnover requirements
- iv. Ease payment terms (advances, payment periods)

#### 4.0 Refundable deposits

##### 4.1 Repayment of document fee

We recommend that the fee charged for documents is refunded if the contractor submits a tender.

#### 5.0 Payments

##### 5.1 Default by Client

This problem arises all too often and is usually not adequately covered within the terms and conditions of contract.

We would suggest that, just as the contractor is required to produce bonds, the client is required to offer a guarantee on payment. This may also be in the form of a bond or statement that the funds are available prior to commencement of the works.

Needless to say none of our recommendations were taken up.

### **2.1.4 Training**

Training in construction is at present inadequate to meet the needs of the industry in every respect. Recent legislation is about to bring about changes which may have long term benefits to the industry.

At the present time training is largely the responsibility of Government. The system will shortly change and Management Boards from the private sector will be set up to run Colleges and Training Centres. In some sectors this is likely to have a positive effect in that the needs of the industry can be more focused.

In addition to construction training, support in business administration and accountancy is essential to foster new companies to enter the market place.

### **2.1.5 Access to Capital**

Construction is considered- by local commercial lending institutions as high risk. Coupled with very high interest rates (significantly higher than the rate of inflation) it is almost impossible to raise sufficient capital to allow companies to form and develop.

The problem is particularly acute for small and medium sized companies who are generally expected to grow on the basis of profits generated from their own turnover.



The capital requirements of a contractor vary enormously depending on the sector in which they intend to operate. For example, a small road builder needs more capital than a jobbing contractor. There is almost no facilities for plant hire, as available elsewhere and contractors in general have to be self sufficient.

In order to perform to a satisfactory standard a road contractor would need an initial capital investment in excess of \$1 00, 000 just to carry out small works.

Clearly something has 'to be done to engender local participation, particularly in the Road Sector.

- i. Contractors need to borrow capital at reasonable interest rates which allow them to pay back and make a profit at the same time.
- ii. Payment terms in contracts have to be looked at.
- iii. Plant hire businesses should be encourages
- iv. Plant and equipment leasing and hire purchase system should be established.

In this paper we have attempted to focus attention onto areas which should be addressed in order to allow local contractors to:

- i. Establish themselves
- ii. Procure work
- iii. Obtain finance at affordable rates
- iv. Build up capacity and management skills
- v. Have access to information

The list is not exhaustive but we hope it illustrates the immense difficulties the industry faces. There are no large Zambian contractors anymore. Whilst we recognise the problems of the so called emerging contractors we should not over look those encountered daily by existing companies struggling to perform in a deteriorating environment. If we wish to rebuild our industry maybe we should pay closer attention to those organisations which are, already up and running.

Zambia used to be sell sufficient in construction There is absolutely no reason why it should not be again. We must make this our aim.

## 2.2 THE ZAMBIA NATIONAL ROADS BOARD — ITS ROLE IN ROAD SECTOR MANAGEMENT

*Raymond Jhala, Chairman, Zambia National Roads Board*

### 2.2.1 Background

Zambia is a large country with a relatively small population. Average population density is about 13 people/km<sup>2</sup>. GDP has stayed more or less constant in real terms over the last 10 years at about US\$2.4 billion but GNP per capita has steadily decreased at about 2.3% per annum due mainly to population growth.

The original infrastructure was developed during the first half of the century to access mineral resources in the Copperbelt along what is known locally as the 'line of rail' between Livingstone and Chingola. Later, road and rail systems were extended to open up other parts of the country and establish better communications links with Zambias' neighbours, notably in the north and east.

As the population has grown and new areas opened to agriculture the road network has gradually been extended. The result is that Zambia now has one of the highest lengths of road network per capita in Africa.

Estimates of the total length of the road network (especially the lengths of rural and urban roads) vary from source to source. Table 1 gives an indication of the extent of the network and the institutions responsible for the upkeep of the roads.

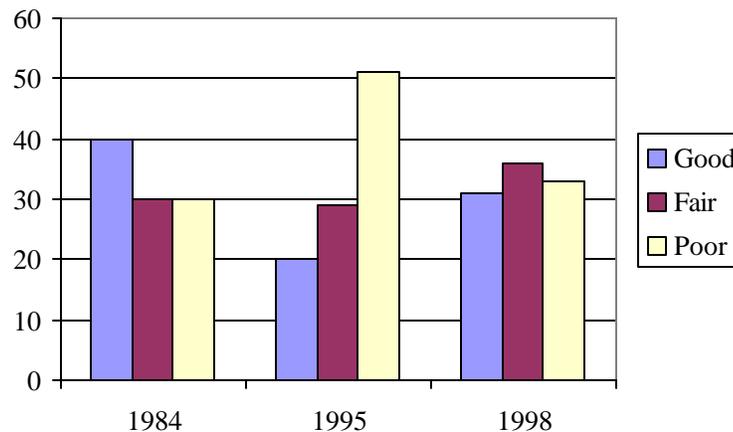
Authority	Designation	Lengths (kms)		
		Paved	Unpaved	Total
Roads Department	Trunk	3085	140	3225
	Main	2008	1935	3943
	District	1289	12207	13496
		<b>6382</b>	<b>14282</b>	<b>20664</b>
Local Authorities	Rural		15898	15898
	Urban	700	843	1543
		<b>700</b>	<b>16741</b>	<b>17441</b>
Parks & Wildlife			5162	5162
Other Rural			22483	22483
Totals		<b>7082</b>	<b>58668</b>	<b>65750</b>

**Table 1: The Zambia Road Network**

The size of the vehicle fleet is estimated to be around 130,000 vehicles. Traffic levels are low, even on the trunk road network. Many trunk roads carry less than 500 vehicles per day.

## 2.2.2 Deterioration of the Road Network

Since the boom years of the 1960's Zambia has become poorer and more indebted due to excessive reliance on copper exports and economic mismanagement. Expenditures on infrastructure maintenance steadily declined until, by the early 1990's just 20% of the paved road network was judged to be in good condition. At that time road maintenance expenditure was only 12% of estimated needs. Allocations continued to decline further through the decade. However, since many roads had become 'unmaintainable' a number of donor funded rehabilitation projects were launched on the more important routes in the mid 1990's. These projects resulted in the improvement in the paved network between 1995 and 1998.



**Figure 1: The condition of the road network**

## 2.2.3 Institutional Framework

Since the elections in 1991 the government has been implementing an ambitious reform policy in an effort to stimulate the private sector and diversify economic activity away from copper production. The reform process has been extended to the civil service through the Public Sector Reform Programme.

In the Roads Sector the reform process has been supported (and guided) by the World Bank under the Sub-Saharan Transport Programme. Reforms are based on four "Building Blocks":

1. Ownership
  - Involve the private sector
2. Funding
  - Secure sources of funding
  - Introduce a "Fee-for-Service" concept
3. Responsibilities
  - Establish clear lines of responsibilities

#### 4. Management

- Introduce sound management principles

The result has been:

- The re-establishment of the Road Fund, and
- The creation of a National Roads Board

##### 2.2.3.1 The Road Fund

The government re-introduced the Road Fund in 1993. It was established to provide a source of sustainable funding for the *maintenance* of the road network, linking revenue with road use through a levy on fuel. Upgrading and the construction of new roads fall outside the remit of the fund – these activities require funding from other sources (GRZ, donors).

The fuel levy is currently set at 15% of the wholesale fuel price for both diesel and petrol. At the moment it amounts to ZK73 per litre on petrol and ZK68 per litre on diesel. Total revenue in 1998 was about US\$12million. This compares with an estimated annual requirement of between US\$40- US\$50million for the maintenance of the road network.

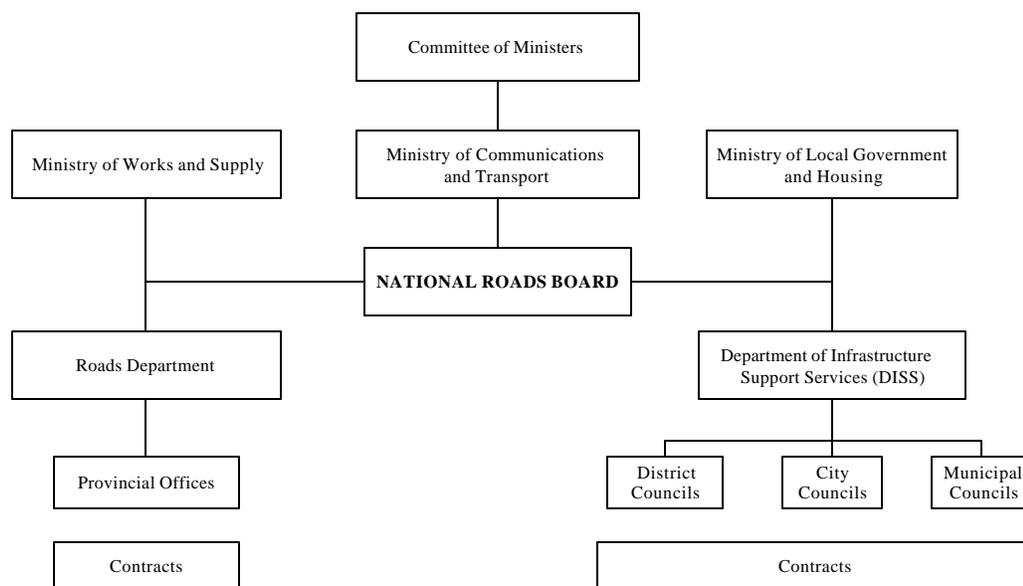
The fuel levy is not paid directly into the Road Fund. The Zambia National Oil Company, who is responsible for purchasing and refining oil products, pays the levy to the Revenue Authority who then passes it to the Ministry of Finance. From there the money is transferred to the Ministry of Transport and Communications who then pay it into the Road Fund account.

There is a commitment to supplement fuel levy money with monies from licence fees, transit charges and weigh bridge fines. It is expected that these will add another US\$6million to the Fund. Clearly there is still a wide gap to fill to fully meet road maintenance needs.

Although there is limited scope for increasing the overall fuel price (since fuel in Zambia is already higher than in some neighbouring countries) there may be scope for raising the levy within the existing price structure. It is recognised that the revenue base must be extended in order to meet maintenance needs.

##### 2.2.3.2 The National Roads Board

The Zambia National Roads Board was set up in 1994, primarily to manage the Road Fund. The Board was created through a Statutory Instrument issued by the Minister of Communications and Transport (MCT) to the Roads and Road Traffic Act. As such the NRB does not have any Executive Powers. Instead, it has a largely advisory role to MCT and the ministries designated as Highway Authorities for the various classes of roads.



**Figure 2: Institutional structure**

The National Roads Board is responsible for managing the disbursement of the World Bank component of ROADSIP, valued at US\$70million.

### 2.2.3.3 Role and Functions of the NRB

The primary function of the NRB is the management of the Road Fund. Although officially the NRB exists as an advisory body (reporting to the committee of ministers) in practice it has been given a certain amount of discretion in the allocation of funds.

Because it has no executive powers the NRB is totally dependant on the road agencies (primarily Roads Department and DISS in MLGH) for preparing and implementing work programmes. The NRB does not (legally cannot) enter into contract with contractors. It is not a signatory to any contract.

The role of the NRB is rather in:

- Defining maintenance policy and deciding where and how Road Fund money should be spent;
- monitoring the procurement and implementation process;
- management of the Road Fund

to make sure that road users get maximum benefit and value for money from the money that is spent.

The NRB Secretariat has developed close working relationships with the agencies and, in recognition of the constraints within which all parties are working, tries to be as constructive as possible in helping agencies at each step. The recent strengthening of the secretariat has helped broaden these relationships, particularly at the technical level.

As well as being responsible for the management of the Road Fund, the NRB has been given the task of co-ordinating the Road Sector Investment Programme, or ROADSIP. The NRB was instrumental in helping prepare ROADSIP, which is being supported by the World Bank and other donors.

The management of ROADSIP requires close involvement with a range of institutions responsible for the implementation of the various programme components. The NRB is charged with overall co-ordination and reporting.

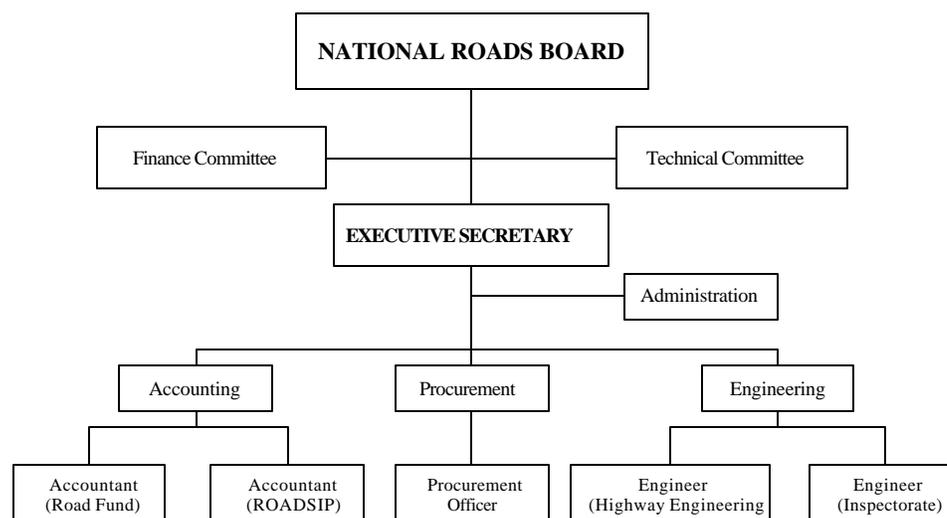
#### 2.2.3.4 Composition of the Board

A distinguishing feature of the NRB in Zambia is that the Board is dominated by private sector representation. Of the 11 Board members, seven are from the private sector. The four public sector members are ex-officio and are therefore not entitled to vote.

The Board is advised by two standing committees:

- a Finance Committee, and
- a Technical Committee.

Each standing committee comprises 6 members, three of whom are drawn from the Board itself. Other members are drawn from ministries and institutions that have road sector interests at either financial or technical level. Technical committees are themselves supported by the NRB Secretariat who advise the members at meetings, providing working papers for discussion, giving background and analysis to the various issues being discussed.



**Figure 3: The NRB Secretariat**

The frequency of Board meetings varies, but members are required to meet at least once every 2 months. In 1998 the Board met a total of 8 times. Finance and Technical committee meetings happen more often – on average every 6 weeks or so. Recommendations from both committees are passed to the Board for final approval.

### **2.2.3.5 Size and Composition of the Secretariat**

Since it was created the intention has always been to keep the NRB as small an organisation as possible. Over the first years of its operation the Secretariat consisted of the Executive Secretary an Accountant and an Administrator. Key staff costs were funded externally. In 1997 the NRB was given authority to hire its own staff and fund salaries from the Road Fund (costs not exceeding 5% of Road Fund revenues).

With time it became clear that certain technical skills were required within the Secretariat to cope with the volume of work (particularly being generated by ROADSIP) and provide a greater depth of advice and guidance to the Board.

Last year the NRB Secretariat was strengthened with the recruitment of a Procurement Co-ordinator (from Zambia National Tender Board) and two Engineers (who head an Engineering Section). In addition a technical assistance contract began in 1998 and consultants are providing a range of support services to the NRB to help strengthen the organisation and meet the demands that ROADSIP is placing upon it.

### **2.2.3.6 Policy**

Under the Policy guidelines of the Board, 40% of the Road Fund is disbursed for Main, Trunk and District roads, another 40% for maintenance of Feeder roads and the balance 20% for the maintenance of Urban roads in the country. These were adopted in April 1997 by the Councils and the Provincial Road Engineers through Ministry of Local Government and Housing (MLGH) and Ministry of Works and Supply (MWS) respectively.

Under these budget guidelines, priority is given to maintenance of roads in good or fair condition through a contracted maintenance programme. Roads that have recently been rehabilitated are automatically included. Second priority is given for emergency repairs to arterial roads, which are in bad condition but require to be attended to immediately in order to improve accessibility.

Virtually all works are contracted to small and medium sized local contractors through the road agencies.

### **2.2.3.7 Information Dissemination**

Transparency is one of the NRB tenets and great effort is made to ensure those interested parties and stakeholders have ready access to information in as useful a form as possible.

The Road Fund accounts are audited every 6 months and the results published on the NRB web site. The web site also has pages giving details of the NRB and the programmes that are being funded, both from the Road Fund and through ROADSIP.

The NRB Chairman is a frequently seen on Zambia Television, explaining various aspects of activity in the road sector and



generally championing the need for better maintenance of the road network.

Various publications have been produced to support the ROADSIP programme, including:

- Programme Implementation Manual
- Road Maintenance Manual
- Core Road Network – draft work programme
- Road Sector Investment Programme

A notice board outside the NRB offices gives details of current work programmes, up-coming tenders and other information about NRB activities.

### 2.2.4 The Roads Sector Investment Programme

The first phase of ROADSIP began in 1998 and is due to be completed by 2002. A second phase is currently being prepared by a working committee led by the NRB.

The strategy adopted for ROADSIP has been to define a ‘core’ network of priority roads on which improvements and maintenance are to be targeted over a ten year period. It has been recognised that spreading the limited resources available too thinly will have limited impact. Consequently, a network of about 30,000km has been chosen for the programme.

The costs involved in bringing even this ‘core network’ of roads back to a maintainable state, and keeping them in good condition, are considerable. Maintenance costs alone are estimated to be between US\$40million and US\$90million, depending on whether rehabilitation of roads that have reached the end of their useful lives is taken into account.

Road Type	Surface	kms	Annualised Costs (US\$millions)	
			Routine	Periodic
Trunk and Main roads	Paved	5093	5.1	10.9
	Unpaved	2075	1.7	3.6
District roads	Paved	1289	1	2.3
	Unpaved	3711	2.2	5.3
Urban roads	Paved	1022	1	1.8
Feeder roads	Unpaved	16810	6.7	
Total Annualised Costs		30000	<b>17.7</b>	<b>23.9</b>

**Table 2: Estimated maintenance costs**

The objectives of ROADSIP are to:

- Bring a Core Network of roads into a maintainable condition;
- Improve the network to at least 50% good condition and no more than 10% poor condition;

- Broaden the revenue base for maintenance funding;
- Strengthen technical and managerial capacity of the road authorities;
- Create employment opportunities in the road sector;
- Improve road safety and reduce accidents by at least 20%;
- Improve environmental management in the road sector;
- Improve road transport services in rural areas;
- Develop a framework for the management of community roads;

Various donors are supporting ROADSIP, but nearly half the costs are due to be covered locally as shown in Table

ROADSIP Programme 1997-2001 (US\$ million)							
	1997	1998	1999	2000	2001	Total	
Maintenance	22.9	25.1	28.8	32.2	35.9	<b>144.9</b>	
Rehabilitation	26.6	40.0	51.0	47.5	64.3	<b>229.4</b>	
Technical Assistance	9.1	7.1	4.3	4.7	3.7	<b>28.9</b>	
Running Cost (NRB)	1.3	1.5	1.7	1.9	2.1	<b>8.5</b>	
<b>Total</b>	<b>59.9</b>	<b>73.7</b>	<b>85.8</b>	<b>86.3</b>	<b>106.0</b>	<b>411.7</b>	
<b>Financed by:</b>							
Road Fund	22.9	25.1	28.8	32.2	35.9	<b>144.9</b>	35.2%
GRZ	4.9	6.2	7.2	7.1	9.0	<b>34.4</b>	8.4%
Donors	32.1	42.4	49.8	47.0	61.1	<b>232.4</b>	56.4%
<b>Total</b>	<b>59.9</b>	<b>73.7</b>	<b>85.8</b>	<b>86.3</b>	<b>106.0</b>	<b>411.7</b>	

**Table 3: Estimated cost of ROADSIP – 1998 to 2002**

It should be noted that all maintenance is to be funded from the Road Fund. The local funding requirement represents about 44% of the total programme costs.

Most of the funds earmarked for rehabilitation are for major works on the trunk road network, but there are feeder roads components funded by World Bank, EU and DANIDA. All maintenance works are being contracted to small and medium sized local firms.

The World Bank credit contains a component that will support the training of small contractors and consultants through actions co-ordinated by the National Construction Council.

A breakdown of the ROADSIP project components follows:

#### 2.2.4.1 IDA (World Bank) US\$70 million

- Great North Road
- Kitwe and Ndola Urban Roads
- Chingola-Kasumbalesa
- Feeder Roads in Northern, Luapula and Western Provinces
- Periodic maintenance of trunk roads

- 
- Community roads
  - Support to NCC and NRSC
  - Technical assistance to NRB, MLGH (Feeder and Urban Roads)
  - Institutional changes

#### **2.2.4.2 European Union US\$70 million**

- Monze-Zimba
- Kabwe-Kapiri Mposhi
- Feeder roads
- Technical assistance to Roads Department

#### **2.2.4.3 DANIDA**

- Completion of Kapiri Mposhi-Serenje
- Probable involvement with Lusaka-Mongu Road
- Feeder roads

#### **2.2.4.4 Japan**

- Chirundu Bridge

#### **2.2.4.5 Germany**

- Livingstone-Shesheke

#### **2.2.4.6 Kuwait**

- Lusaka-Mongu (design)

#### **2.2.4.7 NORAD**

- Technical assistance to Roads Department

#### **2.2.4.8 GRZ**

- Rehabilitation/Upgrading of:
- Lusaka City Roads
- Choma-Namwala
- Mutanda-Kasempa-Zambezi
- Luanshya-Mpongwe
- Nchelenge-Lunchinda
- Kalungwishi Bridge
- Lusaka-Mongu (last section)
- Lundazi-Chama-Muytombe

The Institutional changes being supported under the IDA credit include:

- The creation of an Environment Management Unit in Roads Department to monitor all roadworks contracts.
- The revision of the Roads Act (CAP 464), and
- The revision of Transport Sector Policy.

## **2.2.5 Maintenance Contracting Experience**

The Institutional changes that have taken place in road sector management and financing have meant that people have had to adapt to new ways of working. There has been a need to adapt to new procedures. Agencies have become accountable to the NRB for their actions. A new sense of discipline has been imposed which in itself is proving to be a catalyst for change.

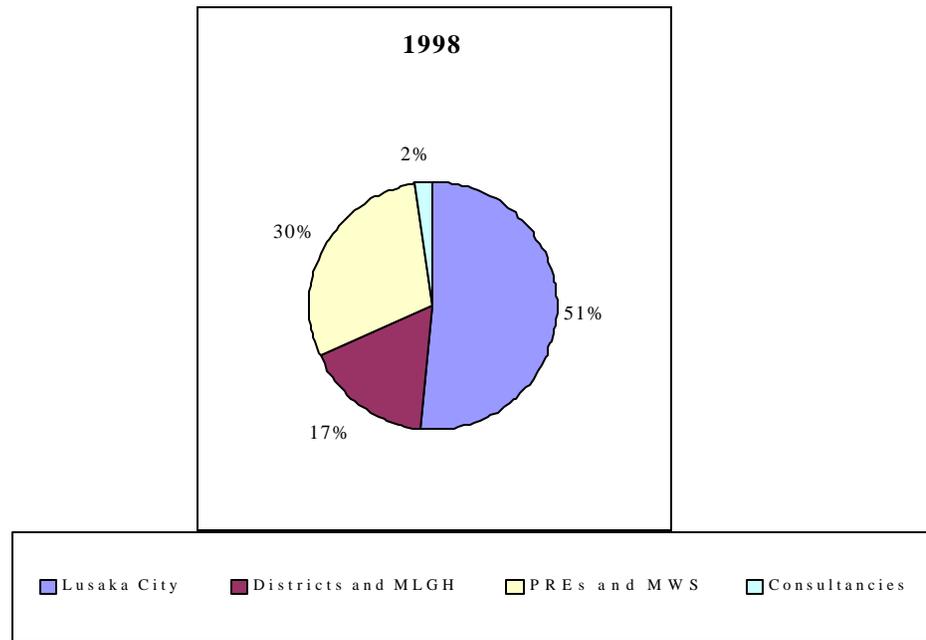
The move to contracting out to the private sector and the downsizing resulting from public sector reforms have placed considerable strains on the agencies. All involved in the road sector continue to move along a learning curve that sometimes appears to get steeper rather than flatter but most people agree that the changes that have been made are for the better.

Unfortunately funding of road maintenance has not been as consistent as the NRB would have wished. Since 1997 a large portion of the Road Fund has been utilised for the financing of rehabilitation works in Lusaka City. This has distorted the works programme away from routine maintenance that would normally take first call on the Road Fund. It is hoped that this distortion will be corrected in the near future as the government secures alternative funding for the Lusaka project.

The relative split in funding between agencies and projects is shown in Figure 4.

In the meantime agencies have become frustrated because effort expended in drafting maintenance programmes appears to have been wasted. Contractors who have tendered for works have not been awarded contracts because funds have not been available to finance them. Since consistency in funding is a pre-requisite for capacity development the result has been a slowing of the capacity building process and a growing loss of confidence in the sector.

The experience of maintenance contracting from the 1997/98 programme has highlighted many of the challenges that need to be met in building capacity, both at agency and private sector level. Over 140 contracts were awarded between late 1997 and early 1998, mostly to small contractors for maintenance and emergency repair (accessibility) works. Although most of the larger contracts have now been completed there are many small contracts that have still not been finished, now in the second quarter of 1999. Some of these are contracts that should have been completed over 12 months ago.



**Figure 4: Road Fund Expenditure in 1998**

Some of the problems can be attributed to poor preparation of contract documents by agencies, lack of (or inadequate) supervision etc. But it has also become clear that many contractors (even some of the better-equipped firms) are just not committed to completing their contracts. There appears to be little appreciation of the serious obligations that result from the signing of a contract.

Clearly there is a cultural problem that needs to be addressed by tightening up contract administration and monitoring, so that contractors who are not interested in performing are screened out of future works programmes.

Another problem has been that trained contractors have not been winning contracts because not enough importance has been given to training during tender evaluations.

### 2.2.6 The Way Forward

Road agencies are working hard to improve their contract management procedures. The NRB Secretariat is providing assistance to agency staff to help improve contract documentation and train staff in contract administration. Systems are being developed within the NRB to help improve contract monitoring.

The primary role of the NRB in capacity development is to:

- Ensure consistency of funding for road maintenance;
- Ensure that works contracts are packaged so that a range of local contractors can participate in the works programme;
- Ensure that training and previous experience are properly recognised in tender evaluations;



- Monitor contract implementation and contractor/consultant performance;
- Help agencies improve the contracting environment – from contract preparation, through procurement to execution of the works;
- Work constructively with the agencies and the NCC to support private sector development;
- Help build a ‘quality culture’ in which all involved are committed to producing good results and value for money.

The ROADSIP programme offers exciting possibilities for firms with road sector interests. As the network is gradually brought back into maintainable condition there will be an expanding workload for small local contractors, both on maintenance contracts but also through sub-contracts to larger firms. The build-up will be a gradual process, as much needs to be done to improve the skills and resource base of local firms.

Continuity of funding is a prime requirement. The NRB exists to ensure that will happen, but some politicians still need to be convinced of the principle of giving roads in better condition priority for maintenance.



# **3 CREDIT FACILITIES AND APPROPRIATE INVESTMENTS FOR CONTRACTORS**



## 3.1 CREDIT FACILITIES AND APPROPRIATE INVESTMENTS FOR CONTRACTORS

*Peter Rademaker, ILO*

### 3.1.1 Introduction

The contribution that small contractors for labour-based road works can make to the establishment of an efficient and sustainable maintenance capacity of rural roads has been generally recognised. In many countries and regions, the number of small contractors is limited. Often their technical capacity to take on works is not sufficiently developed and they lack the financial resources to make the necessary investments in equipment. This has led to the establishment of a large number of contractor development programmes.

One of the key areas that influence the development of small contractors is the access to financial services to invest in equipment. Even if labour-based works do not require huge investments in equipment, there is still the need for a basic fleet to execute the works. Without this basic equipment, the quality and productivity of labour-based contractors will be insufficient.

### 3.1.2 The Needs of (Labour-Based) Contractors for Financial Services

Like any enterprise, small-scale contractors engaged in labour-intensive road works need financial services. Besides everyday banking services like an account, cash withdrawal, cheques, most contractors will need to finance their investments in equipment. Also, there might be a need to finance working capital while awaiting payments for finished works. This short paper focuses on those financial services needed to make investments in equipment.

Labour-based contractors usually require less start-up capital than equipment-based companies and are generally qualified by low levels of capitalization anyway: few holdings of property in lands or buildings, no or little ownership of equipment. In order to carry out successfully the maintenance or construction contracts that are obtained, a minimum plant of equipment is required: only to a certain extent can equipment and labour be used interchangeably.

As an example one might say that a small contractor will typically have to make investments valued at anything between 7,000 US\$ and 50,000 US\$ for instance in a tractor, a trailer, a small compacter or a truck. This kind of equipment will have an expected economic life of anything between 4-7 years and may represent between 15% and 50% of the annual turnover. However, the reimbursement

capacity of most small contractors will fluctuate between 10 and 20% of annual turnover.

### **3.1.3 The Prerequisites to the Successful Provision of Financial Services**

For any kind of financial service to small contractor to be viable, the enterprise itself must be viable, that is making regular profits. For this to be the case, a number of prerequisites exist.

Firstly, the company needs to be properly managed: a notion of the cost structure, correct accounting, a bidding capacity etc. Secondly, there must exist a stable market for its services, i.e. a regular flow of road maintenance and construction activities for which the company can bid or otherwise become involved. This is often related to the issue of financing in the road sector. Roads are a public good and a government must allocate sufficient resources to the maintenance and further development of the road network. These allocations can be done in a number of ways, including the setting-up of road funds. The public financing of roads may involve road user fees, taxes etc. The unit rates set for labour-intensive work must cover the reasonable cost of the contractor and a certain profit margin.

A third prerequisite is that payments for executed works must be regular and can be forecasted in a reliable way so as to avoid cashflow problems endangering the existence of the company.

More can be said about this but that would go beyond the scope of this paper. They are however important issues to keep in mind in the development of the small-contractor industry.

### **3.1.4 Different Options for Financing for Labour-Based Contractors**

A small contractor has in principle a number of options when considering to invest in the acquisition of equipment.

#### **3.1.4.1 Pay for the Equipment when Purchased**

In many cases, the equipment is paid in cash, using the revenue of earlier contracts or the capital of the owner of the company. The capacity for these direct purchases will typically be limited and not allow the acquisition of new equipment. The available resources may be augmented through the injection of venture capital, where an outside entity provides capital in exchange for a participation in the ownership. This option is not widely available and many venture capital companies regard the construction industry as a particular risky one. Other obstacles are that to use venture capital the contractor will have to convert his activity into a licensed company and accept to lose the full ownership.

#### **3.1.4.2 Rent Equipment**

Many contractors rent equipment to complement their own in order to adapt to a changing demand for their services. Often the rental market is fairly unstructured, with contractors renting equipment from each other or from larger companies or government agencies. The rental prices are relatively high and equipment is in general in poor condition, affecting productivity. Certain types of equipment may be hard to find, for instance compactors.

In several situations, plant pools run by governments or specific projects have been set up to provide rental equipment to contractors. These have proved many times to be unsustainable since the full costs of operating the pools are not covered.

Although equipment rental is a modality that offers flexibility in terms of costs and productivity to well-established contractors, it does not constitute a lasting solution for under-equipped contractors since over a longer period, rental is too expensive and unreliable.

#### **3.1.4.3 Take out a Loan**

A contractor could take out a loan from a bank to finance the investment, paying back over a number of years the capital and the interest rate. The bank would require some form of collateral which might be buildings or any other fixed asset. Also, a number of guarantees would be required. These can take different forms but would in most cases be difficult to obtain for a small contractor with only limited bookkeeping records, a relatively recent start of the company and in general used to more informal operations.

With a loan the equipment would become the property of the contractor from the day of purchase, although the bank will in many cases require a clause of retrocession of the equipment in case of default.

In many countries and region, the banking sector is poorly developed and has not shown a keen interest in providing credit. This is related to the perceived risk of the contractor business, the absence of guarantees and collateral etc. The net-result is that even if a bank accepts to give out a loan to a small contractor, the interest rate would include an important risk mark-up, making the credit expensive.

#### **3.1.4.4 Enter into a Hire-Purchase**

Under a hire-purchase scheme, the contractor makes regular payments or pays rent and a corresponding percentage of the title is transferred to the contractor. At the last payment, full ownership of the equipment is transferred to the contractor. The total cost would be composed of the value of the equipment plus a fee. This fee to the operator of the hire-purchase scheme is made up of interests, costs of the acquisition of the equipment and a profit margin. Usually, the



contractor will be required to pay a relatively high down-payment. The maintenance of the equipment will be the responsibility of the contractor.

Such schemes are sometimes operated by suppliers of equipment (dealers), but generally restrained to trusted customers (long standing relationship, past payment history, different forms of guarantees), making them in most cases inaccessible to start-up contractors or only at prohibitive rates.

#### **3.1.4.5 Enter into a Leasing Arrangement**

Similar to hire-purchase in many respects, leasing may constitute an attractive alternative for small contractors. The down-payment will generally be relatively small and the periodical payments can be paid out of the ongoing revenues from contracts. A lease agreement is a contract in which an equipment owner (the lessor) transfers the equipment's use to the lessee, subject to specific terms and conditions and for a prescribed period of time. Two main categories of leasing agreements are generally distinguished. The first, operational lease, is not a means of financing equipment purchase. Instead, the lessee contracts for short-term use of equipment the lessor has available. The lessor remains responsible for maintenance and the obsolescence risk.

The most interesting arrangement is the financial lease, as an alternative to bank loan financing.. In this case the lessor is basically funding the purchase of the asset required by the lessee (a piece of equipment) with the responsibility for maintaining and repairing the equipment is put on the lessee. The lessor recovers the total cost of purchase, interests and a profit margin. Critical to this arrangement, legal ownership (retained by the lessor) is separated from economic use of the asset (held by the lessee). The leasing company focuses on the lessee's ability to generate cash flow to service the lease payments, rather than relying on its credit history, assets or capital base (like a bank would). Security for the transaction is provided by the asset itself.

Depending on the duration of the agreement and the equipment's anticipated residual value, the risk of the equipment becoming obsolete is more or less on the lessor. Since the lease term will generally run for most of the equipment's useful life, the lessee bears most of the risk of the equipment becoming obsolete.

Under hire-purchase or leasing, the grouping of the procurement of equipment may lead to lower prices. These savings can be passed on to the small contractors through lower rates and fees.

In considering hire-purchase or leasing, a number of issues have to be considered:

1. the legal framework covering these types of instruments must enable the lessor to comply with the laws covering financial institutions;

- 
2. the judicial situation must allow the lessor to recuperate assets in case of non-payment;
  3. the lessor may need the possibility to refinance its activity with banks;
  4. the rates to be charged to the lessee should not be excessive in respect to the bank rate for short to medium term credit;
  5. a second-hand market of reasonable size and with reasonable prices must exist to resell equipment at the end of lease agreements;
  6. sufficient potential clients (lessees) should exist to justify setting up a specialized lessor institution.

### **3.1.5 Development of Appropriate Financial Services: Some Suggestions**

With appropriate financial services we understand here:

- services that small contractors would be interested in to procure since the price is right and it allows their businesses to operate and develop;
- services that are provided in a sustainable manner, meaning in an economically viable way: turning in a profit or at least breaking even (the matter of operational sustainability and financial sustainability may be worked out further here).

When reviewing a limited number of small contractor development programmes in Africa, some tentative conclusions can be drawn:

#### **3.1.5.1 Reliable Demand for Services**

Most programmes build up contractors through a series of trial contracts to assess technical performance and provide training. However, in order for a small contractor to access financial services, the contractor must be given as soon as possible the possibility to gain contracts covering more than one year. The guaranteed cashflow from these contracts will enable contractors to convince financial institutions they will make repayments to loans or lease arrangements.

#### **3.1.5.2 Regular Cashflow**

Very often payments to contractors for finished works are made late. Sometimes this is because there is disagreement on the specifications of the work etc. But frequently, even if the works are carried out satisfactorily, contractors are dependent on cumbersome government disbursement procedures or even the funds are not made available to the government disbursing agent. This results in uncertain cash flow, liquidity crises and defaults on loans. Rationalizing payment of contracts and the possible introduction of buffer funds to account for shortages of cash on the

government side will improve cash flow forecasts for the contractor and allow to better assess repayment capacity per period.

#### **3.1.5.3 'Fungibility'**

Some programmes develop 'captive' contractors that are supposed to work only for the road works they get contracted for, using equipment furnished under one scheme or the other to the contractor. This does not prepare the contractor for the real business world and prevents him/her to take advantage from business opportunities arising. A contractor that has activities in various field is more flexible to optimize the use of its resources and is therefore likely to be more stable financially.

#### **3.1.5.4 Separation of Functions**

In many programmes there has not been made a clear separation between the contracting and supervision of road works and support services in terms of training or facilitating the acquisition of equipment. This leads to conflict of interests and makes it difficult to identify the respective costs of these services.

For instance, the provision of financial services should be separated from the training in management and technical skills. Taking part in training can however be made a part of the conditions for accessing financial services. Likewise, the contracting of road works must stand on its own. However, contractors may be required to obtain prior certification by fulfilling certain training requirements and dispose of a certain fleet of equipment.

#### **3.1.5.5 Contractor Knows Best**

The assets the contractors require financing for must be chosen by the contractor. Often a standard list of equipment is defined and these are provided in one batch to the contractor. The brands of equipment selected may depend on an international bidding process, the nationality of the donor or national government preferences. The contractor however may have all kinds of considerations (alternative use of equipment, prior experience, spare part availability, maintenance skills, resell value) to wish to acquire certain brands of equipment. Also, a contractor would most likely prefer to acquire a total fleet of equipment in a gradual way, adapting to the workload as he goes.

Also, most programmes foresee the acquisition of new equipment, whereas second-hand equipment may be the preferred solution of the contractor because of costs. One option might be to invest in the creation of a local capacity to revise used equipment instead of bringing in new equipment, thereby developing the second-hand market to the benefit of small contractors.



### 3.1.5.6 Mutual Guarantee Associations

Contractors may be in many instances in fierce competition for contracts and most programmes deal with each contractor on an individual basis. There may be however an interest to set up associations of contractors to bundle their forces (representation towards government, labour issues etc). From the point of financial services, it would be interested to develop mutual guarantee associations. Under such a scheme, a group of contractors would contribute to a guarantee fund which would help individual contractors to obtain bank loans. For a bank the mutual guarantee fund would lower the credit risk, resulting in easier approval of loans and possibly more interesting interest rates. Under certain very specific conditions, the guarantee fund would take over the repayment of loans if an individual contractor defaults. As an incentive for contractors to work together in such a guarantee fund, a support programme could consider to make matching contributions to the guarantee fund.

These few comments are certainly not covering the whole range of 'lessons learnt' on finance in contractor development programmes. Many areas were left out including the role to be played by different emerging financial intermediaries and possibly the AGETIPs. The typology of contractors is more complex than assumed here.

A more in-depth study of relevant cases would certainly allow to systematize experiences in order to define 'best practices' which could be fed into the design of new programmes for contractor development. Such further research should be encouraged.

## 3.2 UGANDA TRANSPORT REHABILITATION PROJECT — FEEDER ROADS COMPONENT

*John Otemo, Uganda Transport Rehabilitation Project — Feeder Roads Component*

### 3.2.1 Executive Summary

The Transport Rehabilitation Project – Feeder Roads Component (TRP-FRC) is a pilot road rehabilitation and maintenance project implemented by Ministry of Works Housing and Communication (MoWHC) with funding from International Development Association (IDA), Nordic Development Fund (NDF), the Government and District Administrations of the participating Districts. The Project cost is US \$ 16.52 millions. The pilot Project is designed to introduce labour based road works technology in Uganda using local contractors.

The initial four year project commencing January 1995, is set to rehabilitate 680 Kms of road, put 880 Kms of roads under maintenance, select, train and equip local contractors and key District Administration staff and, strengthen the Ministry's Planning Section capacity to plan, manage and monitor the feeder road network nation wide. The Project period is now extended to December 31, 2000.

Ten contractors were successfully trained and equipped with light road works equipment and have executed the first standard contracts in addition to some intermediate contracts. A second batch of contractors is awaiting approval to award trail contracts. Further all Line District Administration and Local District Council staff is trained in their respective capacities.

In executing the first standard contracts, a number of hindrance to contractor development were observed. Serious cash flow hiccups sometimes interrupted civil works on site because contractors were not promptly paid and therefore could not pay their workers on time. This has also affected contractor's ability to meet their lease obligations. Some contractors are notorious in diversion of funds to their own detriment.

The size of the equipment package is causing serious utilization and management problems to many contractors besides the crippling lease obligation. To help ease this burden to the concerned contractors, the Project management sought and obtained approval to reallocate the excess equipment package to the second batch of candidate contractors.

Implementation hiccups notwithstanding, the Project is progressively edging to achieve its set objectives as mentioned in the conclusions below.

The following paper presents the Project experience in the development of local labour based contractors and examines contractor training, staffing and appropriate investment in terms of equipment package.

## **3.2.2 Introduction**

### **3.2.2.1 Project Background**

The Government of Uganda has since 1986 embarked on a policy of repairing and rehabilitating services of infrastructure that were destroyed or neglected in the past and laying the ground for future development.

This policy emphasizes the development of rural areas as a means of improving agricultural production, rural incomes, infrastructure services and social welfare in an effort to improve the quality of life of the people. Over 90% of the country's population live in the rural areas and derive their livelihood from agriculture which contributes nearly 70% of the GDP, almost 80% of the total Government revenue and over 90% of exports.

Central to the success of such a policy, rehabilitation and maintenance of rural feeder roads network throughout the country, is crucial for development of rural areas.

Uganda has a total national road network of 29,780km comprising of 7,800km of gazetted trunk roads, 21,200km of feeder roads and 780km of urban roads. Most of this extensive feeder road network which were destroyed or neglected in the past still remains unrehabilitated or need greater attention to maintenance.

In order to mobilize national and international resources for the rehabilitation of these roads, Government in 1990, prepared a document titled "Strategy for Rural Feeder Roads Rehabilitation and Maintenance". This document recognized serious constraints in both financing and management of road maintenance/ rehabilitation and recommended a systematic approach in rehabilitating and maintenance of rural roads through increased use of labour – based local contractors as the most cost-effective option.

However, it was noted that local contracting industry needed development through affirmative action by government. TRP - FRC was therefore formulated to address this problem and commenced in January 1995. To provide enabling environment for small-scale contractor development the following affirmative actions were built into the project design:

1. Contractor training at no cost.
2. Access to construction equipment without collateral.



### 3. Availability and continuity of works.

At the national level, Government is developing a national policy in support of labour based contractor development through Labour Based Policy Initiatives Project under Ministry of Finance, Planning and Economic Development with financial support from DANIDA and ILO.

The project objectives comprise:

- Rehabilitation of 680 km of feeder roads in the districts of Kapchorwa, Mbale, Tororo, Pallisa and Busia.
- Implementation of a four-year maintenance program with coverage increasing from 260 km to 880 km during the period.
- Establishment of a feeder road rehabilitation and maintenance capacity through use of labour-based light equipment supported method (LB/LES) and small contractors to execute these works.
- Strengthening MOLG Engineering Department's planning and monitoring capacity.

Norconsult International A.S. provides Technical Assistance (TA) for contractor training, civil works supervision and contractors' equipment lease management services.

#### 3.2.2.2 Project financing

International Development Association (IDA), Nordic Development Fund (NDF) and the Government of Uganda are funding the Project. The total project cost is US\$ 16.52 millions.

### 3.2.3 Contractor Training and Capacity Building

The first stage in contractor development is training to enable them acquire both technical and business skills. The target groups are the Managing Directors, foremen and assistant foremen. It was considered necessary to train the later two groups because labour based technology is still relatively new in the country and therefore no institution was providing training in this specific area. The possibility of hiring appropriate personnel from the open market was therefore not feasible.

Complementary to contractor training is the training of the Client group, which includes district technical, administrative staff and elected officials. For the latter two categories the training is more of awareness building exercise so that the policy and decision makers have an appreciation of the application, the technical constraints and requirements of the use of labour based contractors to rehabilitate and maintain their feeder roads network.

The training program for the technical staff has concentrated on providing the necessary skills to carryout pre- contract surveys of roads, preparation of contract documents and to act as supervisors on behalf of The Engineer.

The table below shows the stages in the Project's Contractor Capacity Development Programme

Contractor Development Stages	Key Factors Observed
<p><b>Pre-Training Stage</b></p> <p>This stage involves general notification of the public of project objectives, advertisements for interested contractors, assessment of applications, invitation to possible candidates, interviews, test and selection of contractors</p>	<p>Selection of contractors:</p> <ul style="list-style-type: none"> <li>Physical verification of the presented data is necessary</li> </ul> <p>Selected supervisors :</p> <ul style="list-style-type: none"> <li>Must be employees of the contractors</li> <li>Ordinary diploma in civil engineering</li> </ul> <p>Client must be appropriately staffed</p> <p>All road equipment must be in place.</p>
<p><b>Formal Training Stage.</b></p> <p>This includes the provision of a 20-week core course for foremen, 3 weeks training for Managing Directors spread over the 20-week program. The courses includes both classroom training at the centre and field training which is carried out on a Demonstration road.</p>	<ul style="list-style-type: none"> <li>Training period could be reduced up to 14 weeks with properly selected and qualified supervisors</li> <li>Series of 4 – 5 days workshops for MDs</li> <li>Complete training of client staff before Trial Contracts.</li> <li>Contractors pay their supervisors allowances during training.</li> </ul>
<p><b>Trial Contract Stage.</b></p> <p>Award of 3-5km trial contracts to each contractor so as to train, test and evaluate the performance of the company under simulated contract conditions. Also used to evaluate training and program refresher courses in weak areas.</p>	<ul style="list-style-type: none"> <li>Contractors must procure adequate and high quality tools.</li> <li>Efficient resource projections and management.</li> <li>Prompt payment of civil works, staff and workers.</li> <li>Assessment of contractors' performance.</li> <li>Provision of continuous work by client.</li> <li>Prompt payment of civil works, staff and workers.</li> <li>Efficient resource projections and management.</li> </ul>
<p><b>Development Stage.</b></p> <p>Contractors who successfully complete the trial contract stage are awarded annual standard contracts of about 15km each, as trained contractors. However further training in business development skills/financial management still continues on-the-job.</p>	

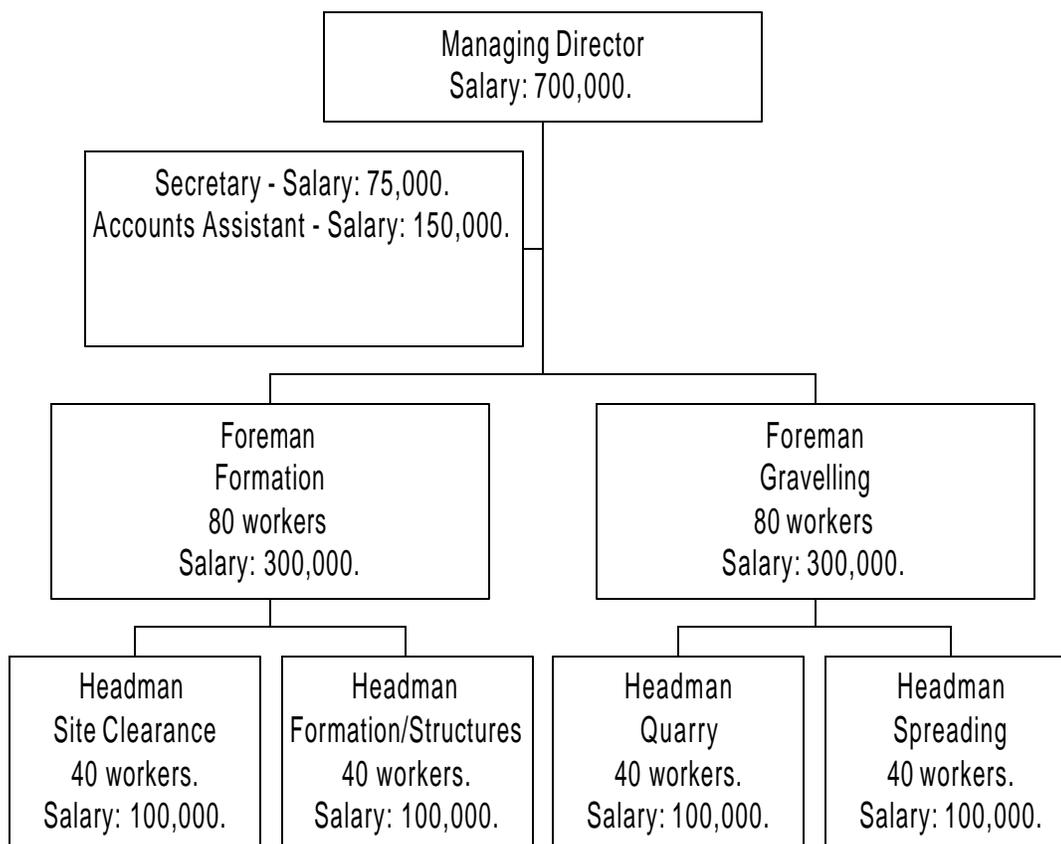
The course contents for each group are divided into modules. Follow up and refresher courses to address areas of weaknesses of

the contractors' operation that may become evident are run to supplement these training modules as shown below:

Contractors	Trainee Categories	Module	Course Contents	
	Managing Directors	1	Introduction to Labor Based Road Construction	
		2	Tendering and Contract Procurement.	
		3	Contract Management.	
		4	Business Management.	
	Supervisors	1	Labor Based Road Construction Methods.	
		2	Concrete Technology, Masonry, culvert manufacture.	
		3	Contract Management & Supervision.	
		4	Maintenance organization and Management.	
		Maintenance Contractors	1	Maintenance Activities, organization and supervision.
			2	Tendering and Contract Procurement.
			3	Contract Management.
			4	Business Management.
Client Staff	District Engineers	1	Labor Based Road Construction Methods.	
		2	Pre-Contract Assessment, Contract Document Preparation.	
		3	Tendering & Award Procedures.	
		4	Contract Administration & Supervision.	
		5	Maintenance Organization & Management.	
	Supervisor of Works / Road Inspectors.	1	Labor Based Road Construction Methods.	
		2	Field Assessment, Contract Document Preparation.	
		3	Tendering & Award Procedures.	
		4	Contract Administration & Supervision.	
		5	Maintenance Organization & Management.	
	District administrator / Councillors	1	Awareness Education.	

## Appropriate Staffing for a Typical Small-scale Contractor

Typical Small scale Contractor Organization Chart.



### 3.2.3.1 Equipping Contractors

This project attempts to address the main constraint to small-scale contractor development by provision of equipment on a lease to own basis. To this end, light equipment worth Ush 1.795 billion<sup>5</sup> was procured as part of the International Development Agency (IDA) development credit and leased to the successfully trained contractors under the programme. This has been a very motivating affirmative action.

The distribution of the equipment to the contractors based on their performance during the training is as shown below:

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<sup>5</sup> Figure inclusive of all import duties and is as incorporated in the Lease Agreements

**Table 1 – Equipment Distribution**

Equipment Distribution			Contractors				
Description	Qty	Value / item (Ush.)	Set 1	Set 2	Set 3	Set 4	New
Tipper	12	70,869,266	1	1	1	1	3
Pickup S/C	7	20,309,871	1	1			
Tractors	8	27,878,082	1	1		1	
Trailers	16	6,708,739	2	2		2	
Water Bowsers	8	6,123,385	1	1		1	
Water Pumps	8	2,834,436	1	1		1	
Motorcycles	12	2,685,764	1	1	1	1	3
Pedestrian Rollers	24	11,044,220	2	2	2	2	6
Poker Vibrators	4	3,528,804	1				
Concrete Mixer	4	5,062,042	1				
Culvert Moulds 600.	24	1,528,903	6				
Culvert Moulds 900	12	2,672,963	3				
Total Value (Ush)		1,795,050,385	767,959,500	498,620,166	95,643,470	145,896,851	286,930,410
		Value per Contractor (Ush.)	191,989,875	166,206,722	95,643,470	145,896,851	95,643,470

**Legend**

Set 1: M/s. Buyela, M/s. Roone, M/s. Tigatege, M/s. Kaptum.

Set 2: M/s. Star, M/s. Mogen, M/s. Chemisto.

Set 3: M/s. Luna General Enterprises Ltd.

Set 4: M/s. Rock Century Works Ltd.

New: Yet to be allocated



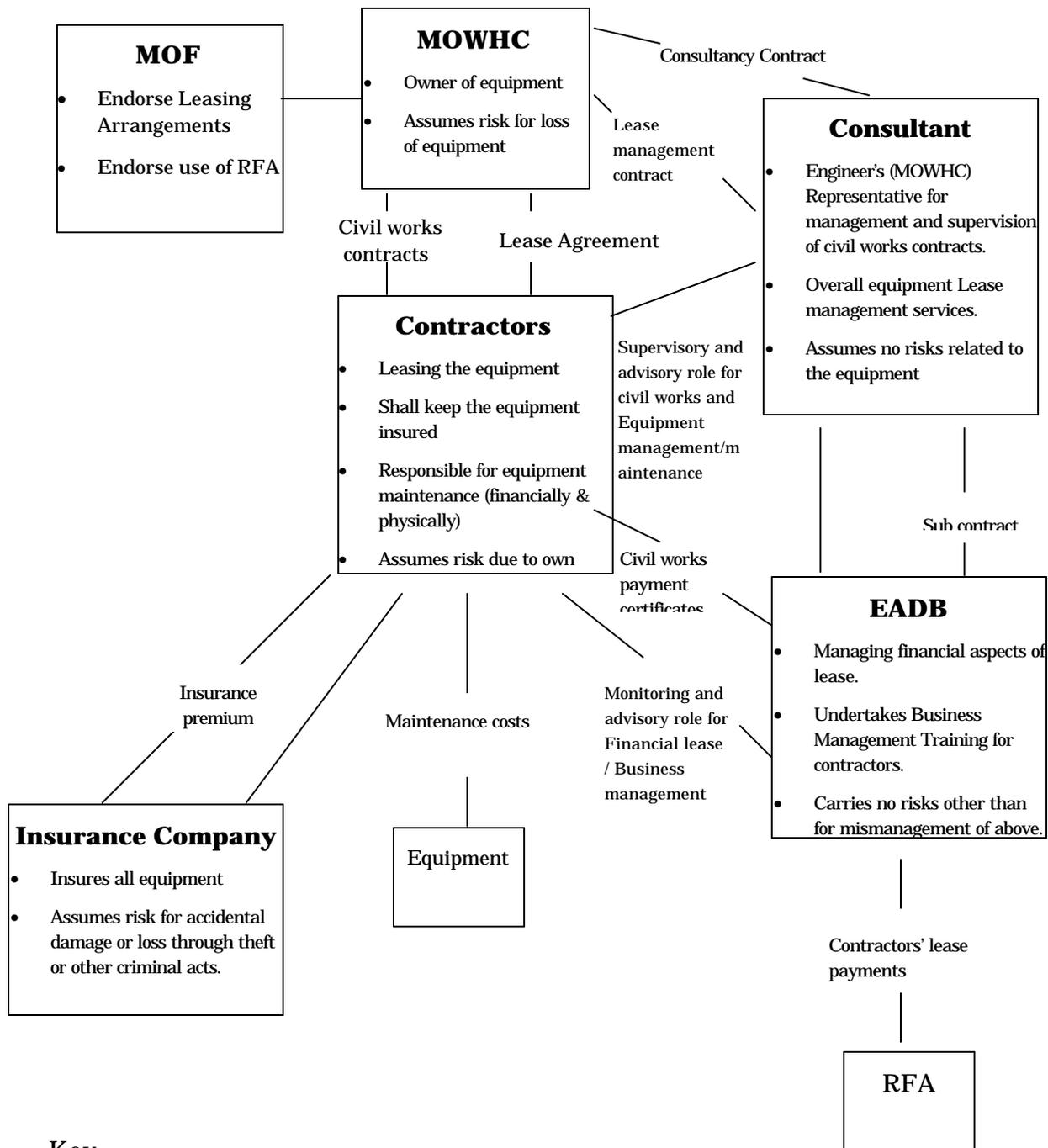
The concrete mixers and culvert moulds have been distributed such that a culvert production site is established in each district.

#### **3.2.3.1.1 Terms of the Lease**

Main features of the Lease Terms of Reference are:

- The equipment set is purchased by the Government and leased to the contractors rather than by a Financial Institution.
- The lease repayments is in local currency (Uganda Shillings). Hence not affected by the devaluation of the local currency to the Dollar.
- The interest rate charged on the lease is at a Government approved rate of 12% as against the prevailing commercial rate of 25%.
- No collateral securities required since equipment is registered in Government names until lease is fully paid back.
- There is assurance of provision of continuous civil works by the Government to contractors until lease is over.
- There is a built-in provision for rescheduling of the lease in cases of the client's default in providing continuous works.
- Mandatory comprehensive insurance by contractors for all equipment at all times.

The following chart helps to explain the various agency roles and relationships in managing the Equipment Lease:



**Key**

- MOF Ministry of Finance
- EADB East African Development Bank
- RFA Revolving Fund Account
- Contractual relationship
- Monitoring/advisory role
- ..... Inter ministerial relationship
- Cash flow

### **3.2.3.2 Equipment Acquisition and it's Financial Implications to Contractors**

#### **3.2.3.2.1 Acquisition**

The question of whether or not to acquire equipment and how it is financed is often dictated by the returns such equipment is deemed to accrue over its useful economic life. By computing the Net Present Value (NPV), Internal Rate of Return (IRR) and Pay Back Periods, it becomes relatively easy to decide whether or not to buy equipment. By further analysis of the equipment operating costs in relation to its benefits, one is in a better position to decide whether to buy or hire which equipment.

In the case of TRP-FRC, the above analysis indicated that equipment be bought and leased to the contractors as a major Project activity. Furthermore, at the time of Project Inception, it was apparent that not many firms had equipment, which could be either hired or leased to contractors nor was there any equipment pool.

It was then decided that Government procures equipment, based on Project Description, and leases the same equipment to successfully trained contractors through a Financing Institution, which service East African Development Bank (EADB) is now providing. Consequently, the ultimate procurement and allocation of equipment is as shown in Table 1 above, upon which the following analysis is based.

#### **3.2.3.2.2 The leasing option**

To implement the lease option, decisions were made on lease interest, lease period and subsequently the monthly lease instalment. Lease interest rate was determined at 12% per annum, payable monthly according to the Project Design. In order to decide on an appropriate lease period, a theoretical analysis was carried out to determine a break-even point for the contractors based on an assumed monthly earning and operating cost ratios.

The calculation was based on a presumed progressive monthly turnover beginning from Ush. 13 to 19 millions. The assumption is based on an average productivity rate of 1.5 kms per month (as observed during the Trial Contracts) and standard contract value for works. This is shown in Table 2, Section 1.

**Table 2 - Contractors' Monthly Break Even Turnover Computation & Analysis for Equipment Lease**

**Section 1 - Estimated Monthly Income Computation.**

Monthly certificate value (without VAT, Ush '000) [a]	13,000	14,000	15,000	16,000	17,000	18,000	19,000
Withholding tax [b]	4%	520	560	640	680	720	760
Amount available to contractor [c] = [a] - [b]	12,480	13,440	14,400	15,360	16,320	17,280	18,240
Profit [d] = 15% x [c]	1,628	1,753	1,878	2,003	2,129	2,254	2,379
Subtotal after profit [e] = [c] - [d]	10,852	11,687	12,522	13,357	14,191	15,026	15,861
Overheads [f] = 20% x [e]	1,809	1,948	2,087	2,226	2,365	2,504	2,643
Direct costs [g] = [e] - [f]	9,043	9,739	10,435	11,130	11,826	12,522	13,217
Equipment cost of direct cost [h] = 40% x [g]	3,617	3,896	4,174	4,452	4,730	5,009	5,287
Running cost of equipment cost [i] = 35% x [h]	1,266	1,363	1,461	1,558	1,656	1,753	1,850
Available for lease payment [j] = [h] - [i]	2,351	2,532	2,713	2,894	3,075	3,256	3,437
<b>Total available inclusive of profits [k] = [d] + [j]</b>	<b>3,979</b>	<b>4,285</b>	<b>4,591</b>	<b>4,897</b>	<b>5,203</b>	<b>5,510</b>	<b>5,816</b>

**Section 2 - Estimated Monthly Break Even Turnover.**

Contractors'	Lease period (months)	Lease Value Ush '000	Monthly payments and balance (Ush '000)				
			5,140	5,140	5,140	5,140	5,140
<b>Equipment package - Roone, Buyela, Tegatege, Kaptum</b>	47	191,990	5,140	5,140	5,140	5,140	5,140
Balance after lease payment		(1,161)	(855)	(548)	(242)	64	676
<b>Equipment package - Star Engineering</b>	36	166,207	5,520	5,520	5,520	5,520	5,520
Balance after lease payment		(1,541)	(1,235)	(929)	(623)	(317)	295
<b>Equipment package - Mogen Enterprises Ltd.</b>	42	166,207	4,866	4,866	4,866	4,866	4,866
Balance after lease payment		(887)	(581)	(275)	32	338	644
<b>Equipment package - Luna General Enterprises</b>	24	95,643	4,502	4,503	4,504	4,505	4,507
Balance after lease payment		(523)	(218)	87	392	697	1,307
<b>Equipment package - Rock Century</b>	42	145,897	4,271	4,272	4,273	4,274	4,275
Balance after lease payment		(292)	13	318	623	928	1,538
<b>Equipment package - Chemisto</b>	47	166,207	4,450	4,451	4,452	4,453	4,454
Balance after lease payment		(470)	(165)	140	445	750	1,360

**Section 2 - Actual Turnover Compared with Estimate for Period 01.11.97 to 31.12.98.**

Contractor	Minimum monthly Turnover (Ush '000)	Expected Min. Turnover (Ush '000)	Actual Total Turnover - Without VAT (Ush '000)	Shortfall in Value of Works Done (%)
Roone Engineering	17,000	238,000	172,130	28%
Buyela Building Contractors	17,000	238,000	179,890	24%
Tigatege Motor Marts and Contractors	17,000	238,000	136,521	43%
Kaptum Construction Services	17,000	238,000	107,533	55%
Star Engineering	19,000	266,000	225,460	15%
Mogen Enterprises	16,000	224,000	180,063	20%
Luna General Enterprises	15,000	210,000	184,806	12%
Rock Century Works	14,000	196,000	135,557	31%
Chemisto Associates	15,000	210,000	97,641	54%



The result of Table 2, Section 2 shows the break-even turnover for all contractors at their set lease periods. The set lease periods are based on their individual performance during the Trial and Interim Contracts.

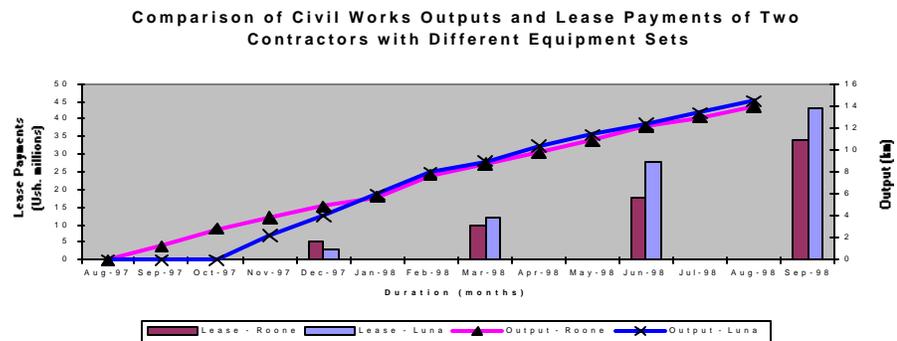
To be able to break even, there is a need for provision of continuous workload for all the contractors within the lease period. However, as shown in Table 2 Section 3, this has not been possible within the period under consideration (Nov. 97 to Dec. 98) for the following reasons:

- Low output by contractors due to:
  - ♦ None consistent prompt payment by client as a result of administrative bottle necks in project cash flow management, and
  - ♦ Diversion of funds by contractors for other business ventures,
- Cumbersome contract procurement process (lead-time of about six months to award a prepared contract) due to IDA and Government bureaucracies.

### 3.2.3.2.3 Haulage equipment utilization

An analysis of the haulage requirements for the First Standard Contracts was conducted to determine whether or not there was adequate workload for this equipment set. This calculation was done for both Tipper only and Tipper-tractor-Trailer combination.

The result of the analysis is shown in Table 3 below. If material available to be hauled can be effectively accomplished with Tractor and 2 Non-tipping Trailers combination, then investment in tipper truck is over and above basic equipment requirement. It was also observed that contractors with both tipper and tractor-trailer combination, under-utilized the tractor-trailer sets. In effect, these contractors are unable to optimize the use of both the tipper and the tractor/trailer combinations. Hence the tractor/trailers idle most of the time. The Graph below further illustrates this point.



The Graph is a comparison of the civil works outputs and lease repayments of a contractor with a full set (M/s Roone Engineering Co. Ltd.) and another contractor with a minimum set of equipment (M/s Luna General Enterprises Ltd.). It is evident that Roone Eng. Co. Ltd. despite having both tipper and tractor / trailer combination, used only the tipper hence producing at the same rate as Luna General Enterprises Ltd. Ltd.

**Table 3 - Contractor's Haulage Equipment Utilization**

**EQUIPMENT PRODUCTIVITY ASSUMPTIONS**

Equipment	Loading time (min)	Haulage speed (km/hr)	Off-loading time (min)	Return speed (km/hr)	Working hours (hr/day)
Tipper truck - 7 ton	25	35	5	45	8
Tractor 50hp	5*	17.5	20	22.5	8

\* It is assumed that each tractor is equipped with 2 non-tipping trailers, so the time requirement therefore only involves the changing of trailers.

**DAILY TARGET TRIPS**

Equipment	Daily Target Trips According to Haul Distance									
	< 1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
Tipper truck	15	14	13	12	11	10	9	8	7	6
Tractor 50hp	17	14	12	10	9	8	Not economical			

**EQUIPMENT USAGE ON ACTUAL TOTAL GRAVEL HAULED**

Contractor	Total Quantity hauled (m3)	Haulage by Tipper				Haulage by Tractor				% Equipment Over Provision			
		Average Haul distance (km)	Daily Target trips (m3/dy)	Required Equipment Utilisation (days)	% Utilisation	Required Equipment Utilisation (days)	Daily Target trips (m3/dy)	Required Equipment Utilisation (days)	% Utilisation	Actual Accrued Equipment cost (Ush)	Required Equipment Utilisation cost (Ush)	Tipper	Tractor-Trailers
Luna	9,130	2	63	145	42%	22,259,665	39	233	67%	27,923,826	26,561,485	119%	95%
Roone	14,433	2	63	229	66%	35,188,985	39	370	106%	44,369,497	42,038,877	119%	95%
Buyela	8,250	2.5	59	141	40%	21,661,397	34	246	70%	29,437,768	42,038,877	194%	143%
Tegatege	7,900	2	63	125	36%	19,261,245	39	203	58%	24,286,342	42,038,877	218%	173%
Kaptum	7,021	2	63	111	32%	17,117,755	39	180	52%	21,583,634	42,038,877	246%	195%
Mogen	11,016	2	63	175	50%	26,857,882	39	282	81%	33,864,879	42,038,877	157%	124%
Star	13,618	2.5	59	231	66%	35,451,951	34	405	116%	48,590,872	42,038,877	119%	87%
Rock Century	9,877	2	63	157	45%	24,080,910	39	253	73%	30,363,418	42,038,877	175%	138%
Chemisto	2,000	2	63	32	9%	4,876,159	39	51	15%	6,148,308	42,038,877	862%	684%

NOTE: Equipment Availability (days): 349

The results of analysis of Table 3 above show that:

- The haulage requirement for First Standard Contracts would be adequately executed by Tractor-Trailer combination except for two cases only.
- The average haulage distance during the First Standard Contracts favoured Tractor-Trailer combination.
- Because of the short haulage distance (less than 5 kms), using the Tipper truck became uneconomical, which meant that equipment utilization averages at about 50% of its availability. A Tractor – Trailer combination is more cost effective than the tipper in our case. Average TRP-FRC haulage distance in all contracts average less than 5 kilometres.
- If the contractors had only Tractor-Trailer combination, they would have easily met their lease obligations.

#### 3.2.3.2.4 Basis of equipment earnings

Given the equipment sets and the value of works on First Standard Contracts (including the Regravelling & Extension Contracts), the contractors are unable to meet their respective haulage equipment lease obligations as shown in Table 4. This has been observed for the first 14 months of operations.

When the returns of haulage and compaction equipment are summed up most contractors breakeven. For concrete equipment, it is a case of under utilization.

In the analysis referred to above, watering equipment were considered under compaction equipment category. The rainfall pattern in eastern Uganda, as shown in the Table below, indicate that there is continuous rains for nine months between March and October but with low and intermittent rainfall between November to February. It is during this latter period that such equipment is required.

#### Monthly rainfall (mm)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Bu	36	56	112	193	215	133	155	179	131	135	80	47	1,472
Mb	29	53	97	164	169	118	116	133	108	88	68	48	1,191
Tor	55	78	138	225	224	108	96	118	111	125	109	78	1,465

Legend: Bu: Bugusege Mb: Mbale Tor: Tororo  
Source: Meteorological Department, Entebbe.

Savings would be increased if the Contracts are awarded by mid January with a 10-month construction time, effectively ending November. This further minimizes the requirement of this equipment set.

**Table 4 Basis of Equipment Earnings.**

Equipment Income & Costs.	Luna			Roone			Roone (including water bowser+pump)		
Equipment Category:	Concrete	Haulage	Compaction	Concrete	Haulage	Compaction	Concrete	Haulage	Compaction
Contract Provision.	14,543,989	29,232,623	28,603,320	11,110,696	52,208,840	28,528,270	11,110,696	52,208,840	28,528,270
Gross Equipment Earnings:	3,255,347	29,232,623	28,603,320	1,609,910	52,208,840	28,528,270	1,609,910	52,208,840	28,528,270
Sub Total	3,255,347	29,232,623	28,603,320	1,609,910	52,208,840	28,528,270	1,609,910	52,208,840	28,528,270
Less: Operating Costs.									
Concrete Equipment.				141,900			141,900		
Haulage Equipment.		8,051,090			8,421,848			8,421,848	
Compaction Equipment			1,908,099			1,276,480			1,276,480
Sub Total	-	8,051,090	1,908,099	141,900	8,421,848	1,276,480	141,900	8,421,848	1,276,480
Less: Financing Costs.									
Lease Interest Accrued.	-	8,795,634	2,741,412	3,199,965	13,920,854	2,741,411	3,199,965	13,920,854	3,853,173
Less: Depreciation.		8,054,760	4,142,880	4,617,480	14,412,720	5,869,080	4,617,480	14,412,720	5,869,080
Total Operating Cost:	-	24,901,484	8,792,391	7,959,345	36,755,422	9,886,971	7,959,345	36,755,422	10,998,733
Sum available for lease & profit	3,255,347	4,331,139	19,810,929	(6,349,435)	15,453,418	18,641,299	(6,349,435)	15,453,418	17,529,537
Lease Installment Due.	-	17,765,852	5,537,237	6,463,445	28,118,023	5,537,237	6,463,445	28,118,023	7,782,827
Surplus or (Deficit).	3,255,347	(13,434,713)	14,273,692	(12,812,880)	(12,664,605)	13,104,062	(12,812,880)	(12,664,605)	9,746,710

Equipment Income & Costs.	Kaptum			Tigatege			Mogen		
Equipment Category:	Concrete	Haulage	Compaction	Concrete	Haulage	Compaction	Concrete	Haulage	Compaction
Contract Provision.	10,072,612	23,594,433	13,138,000	16,778,800	27,175,510	23,667,720	16,380,320	38,751,040	31,556,450
Gross Equipment Earnings:	4,439,195	23,594,433	13,138,000	5,348,490	27,175,510	23,667,720	2,704,934	38,751,040	31,556,450
Sub Total	4,439,195	23,594,433	13,138,000	5,348,490	27,175,510	23,667,720	2,704,934	38,751,040	31,556,450
Less: Operating Costs.									
Concrete Equipment.				-					
Haulage Equipment.		5,262,286			17,719,000			13,669,700	
Compaction Equipment			984,094			1,102,000			2,695,500
Sub Total	-	5,262,286	984,094	-	17,719,000	1,102,000	-	13,669,700	2,695,500
Less: Financing Costs.									
Lease Interest Accrued.	3,199,965	13,920,854	3,853,173	3,199,965	13,920,854	3,853,173	-	13,920,854	3,853,173
Less: Depreciation.	4,617,480	14,412,720	5,869,080	4,617,480	14,412,720	5,869,080	-	14,412,720	5,864,080
Total Operating Cost:	7,817,445	33,595,860	10,706,347	7,817,445	46,052,574	10,824,253	-	42,003,274	12,412,753
Sum available for lease & profit	(3,378,250)	(10,001,427)	2,431,653	(2,468,955)	(18,877,064)	12,843,467	2,704,934	(3,252,234)	19,143,697
Lease Installment Due.	6,463,445	28,118,023	7,782,827	6,463,445	28,118,023	7,782,827	-	28,118,023	7,782,827
Surplus or (Deficit).	(9,841,695)	(38,119,450)	(5,351,174)	(8,932,400)	(46,995,087)	5,060,640	2,704,934	(31,370,257)	11,360,870

Equipment Income & Costs.	Rock			Star		
Equipment Category:	Concrete	Haulage	Compaction	Concrete	Haulage	Compaction
Contract Provision.	13,347,804	31,045,300	22,814,040	44,052,905	53,106,350	30,682,340
Gross Equipment Earnings:	3,151,577	31,045,300	22,814,040	13,865,457	53,106,350	30,682,340
Sub Total	3,151,577	31,045,300	22,814,040	13,865,457	53,106,350	30,682,340
Less: Operating Costs.						
Concrete Equipment.				-		
Haulage Equipment.		3,079,369			-	
Compaction Equipment			864,120			-
Sub Total	-	3,079,369	864,120	-	-	-
Less: Financing Costs.						
Lease Interest Accrued.	-	13,920,854	3,853,173	-	13,920,854	3,853,173
Less: Depreciation.	-	14,412,720	5,864,080	-	14,412,720	5,864,080
Total Operating Cost:	-	31,412,943	10,581,373	-	28,333,574	9,717,253
Sum available for lease & profit	3,151,577	(367,643)	12,232,667	13,865,457	24,772,776	20,965,087
Lease Installment Due.	-	28,118,023	7,782,827	-	28,118,023	7,782,827
Surplus or (Deficit).	3,151,577	(28,485,666)	4,449,840	13,865,457	(3,345,247)	13,182,260

## 3.2.4 Mitigation of Problem

### 3.2.4.1 Equipment re-allocation

To help ease the monthly lease financial burden and also to fully utilize the investment in equipment, Project management proposed and obtained approval from IDA and MoWHC for reallocation of under utilized concrete and excess haulage equipment. This reallocation is effective from April 1, 1999.

The equipment set retrieved from Batch I contractors will equip the newly trained contractors with basic equipment set.

### 3.2.4.2 Haulage equipment utilization

To avail enough work and reduce on lead-time of Standard Contract procurement, the Standard Contracts are supplemented by Regravelling Contracts.

It is worth looking into possibility of replacing the tractor – trailer combination with a smaller capacity (say 3 m<sup>3</sup>, 5 ton) tipper truck at about the price but more cost effective.

### 3.2.4.3 Financial indiscipline

Follow up on business management practice is being intensified to ensure that proper books of Accounts and relevant records are kept, updated and reported so that there is no diversion of funds for purposes other than road works.

## 3.2.5 Conclusions

- In our local situation, the following basic equipment set is recommended as an appropriate investment, which could be conveniently paid back within a shorter period:

Pedestrian Rollers	No. 2	Ush. 22,088,440.-
Tractor	No. 1	Ush. 27,878,082.-
Non-tipping trailers	No. 2	Ush. 13,417,478.-
Water Bowser	No. 1	Ush. 6,123,385.-
Water Pump	No. 1	Ush. 2,834,436.-
Motor cycle	No. 1	Ush. 2,685,764.-
<b>Total</b>		<b>Ush. 75,027,585.-</b>

Source: Uganda TRP Procurement Schedule. US\$/Ush. Exchange rate at procurement time is Ush. 1,050.00/US \$ 1.

Where haulage distances are more than 6 Kms, a tipper truck replaces the tractor / trailer combination.

Weather related equipment like water bowser and water pump, not required on daily basis in countries with evenly distributed rainfall pattern, could be eliminated from the above list and



hired by the contractor from the open market, as and when the need arise.

Provision of a pickup is not necessary for contract supervision as this can be hired from open market as and when required. However, the motorcycle is very essential for daily site supervision.

- Careful selection of both contractors and their supervisors has a great effect in training time and output.
- In our view, two Foremen and four headmen, properly trained, are adequate technical site staffs for an efficiently managed Labor-based road works. Similarly, well trained Accounts Assistant and a Secretary are essential administration staff.
- As a pre-requisite for smooth implementation of labour-based road works, an unimpeded cash flow and prompt payment to contractors (and subsequently to their workers) is crucial. Where equipment leasing is applicable, this observation becomes even more pronounced.
- Although TRP-FRC did not insist on provision of collateral for the equipment lease, it is a necessary condition to ensure commitment from the contractors and help impede diversion of funds. It is equally important that the currency of lease repayment must be the same as the equipment loan currency, preferably local currency.
- Provision of continuous road works is a necessity for the success of equipment lease pay back and must be ensured.

### **3.2.6 Food for Thought**

What about a small scale privately owned equipment hire pool capacity building project?



## Annex 1

### Project Data

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Length of roads rehabilitated to date	91 km
Average cost of rehabilitation	US\$ 12,000/km
Employment manday input	2,500 mandays/km
Employment created	126,728. Mandays
Cash wages paid to workers to date	US \$ 190,092
Average daily wage	US\$ 1.5/manday
Average workforce per contractor of Standard Contract	150
Percentage of Women Workers	7%
Number of rehabilitation Contractors trained to date	14 (2 dropped out)
Number of Contractors' Foremen trained	26
Number of Contractors Assistant Foremen trained	24
Basic set of equipment per contractor	\$ 127,000 - 149,000
Number of Routine Maintenance Contractors trained	16
Length of roads under routine maintenance	350 km
Length of roads towed graded	75 km
Number District Staff trained	
Technical Assistance inputs	
Project Manuals developed	Technical Manual, Routine Maintenance Manual, Equipment Maintenance Manual

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# **4 CONTRACT DOCUMENTATION AND TENDERING PROCEDURES**



## 4.1 CONTRACT DOCUMENTS FOR SMALL SCALE CONTRACTS IN THE ROAD SECTOR

*David Stiedl, Consultant, UK*

### 4.1.1 Background

Increasing the size and scope of operations of the private sector involvement in road construction and maintenance is now acknowledged as a priority in many developing countries. However there is often limited exposure and experience with modern contracting procedures and practice in these countries. This applies mainly to new contractors entering the sector, but also to professional engineers and managers in many client organisations. As a contribution to the private sector development process, this paper looks at some of the currently available contract documentation for Works of Civil Engineering Construction and comments on their suitability for use by Road Agencies with respect to local small or “emerging” contractors.

To put this in context, the planning and implementation of road works in developing countries has until very recently been mainly the responsibility of government force account (direct labour) operations. Contracting-out of works has normally been restricted to large-scale operations, usually involving international firms and overseas development aid.

However, as in the developed world, force account operations have proved increasingly difficult to maintain at efficient levels. Indeed the African Road Maintenance Initiative<sup>1</sup> identified the inefficiency of in-house road agency operations as a major contributing cause to Africa’s current road maintenance crisis. Road departments where 95% of the recurrent budget goes to covering the wage bill, and plant pools with equipment availability of 20% are now commonplace. To quote from a connected study “Competition is seen as the primary factor to motivate managers to cut waste, improve operational efficiency, and allocate resources efficiently”<sup>2</sup>, and the trend now is to recommend commercial, contract orientated implementation.

Unfortunately the private sector in many of these countries is not in a much better shape than the government roads departments it seeks to replace. Local consultants and contractors usually lack experience outside the building sector, contractors are poorly equipped and the

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<sup>1</sup> World Bank. 1991. *The Road Maintenance Initiative: Building Capacity for Policy Reform, Sub-Saharan Africa Transport Program Vols I-III*. World Bank, Economic Development Institute. Washington, D.C.

<sup>2</sup> Shirley, Mary. 1989. *The Reform of State-Owned Enterprises: Lessons from World Bank Lending*. World Bank Policy and Research Series 4. Washington, D.C.



whole sector has limited access to private finance. In addition the client, usually a government agency, is often not familiar with modern contracting procedures. As a first priority a new conducive environment needs to be created if the private sector is to be effectively developed. This will require substantial investment in technical and managerial training for the key actors in government and the private sector, and the introduction of new and appropriate procedures and practices.

In general the introduction of procedures for large scale projects, such as upgrading major highways, reconstructing bridges, or overlaying or resurfacing bitumen roads is more or less in hand. The contracts are high value, the work is of interest to the larger national and international firms, and the scale is such that finance institutions are more likely to be interested. However most road agencies have an equally pressing need to contract out works on their gravel and earth networks. This type of work is ideal for the small scale contractor, the nature of the work is often very straightforward and the risks are very low for the client. (In contrast the risks can be high for the small contractor with only a monopoly client in the sector). Unfortunately very little attention has been given to this area.

To complete this introduction it should be noted that a particular concern in the development process is to encourage a sustainable approach that utilises local resources as much as possible. With the low wage level in most of the developing world, the high cost of imported machinery and the poor availability of spares, this tends to mean encouraging a labour-intensive approach. The local labour is usually supported with simple or intermediate equipment with relatively low capital costs compared to conventional heavy civil engineering plant. This approach is of course commonplace in the building sector, but has been quite a novelty in the roads and water sector, particularly in Africa. Contracts and contract documentation thus have to reflect that approach, and often are required to have in built measures to give active encouragement to alternative technology methods.

A number of forms of contract have been developed for different agencies and governments directed to small labour-based contracts. But what has tended to happen is that either more clauses are added to already complex documentation; or more worryingly, one-off “simplified” documents are tailor made which may have doubtful legal standing or omit important key contractual clauses in their effort to be simple. A recent survey of contracting practice found that special clauses added to existing documents were often “rather weak and poorly drafted”<sup>3</sup>. This is hindering the effective development of the local private sector for smaller civil engineering works. There is certainly a need for a new “common” set of documents, and especially a set that has international standing and credibility.

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<sup>3</sup> Bentall, Twumasi-Boakye, Watermeyer. 1995. *Labour-based Contracting. A Study to Develop Guidelines for Project Formulation and Implementation*. ILO Geneva



It must be emphasised that appropriate contract documents alone cannot solve the problem, which can be broadly defined as “creating a conducive environment for small contractor development”. However they are an essential component. The reader is referred to a forthcoming guideline *Contractor Development for Labour-based Work*<sup>4</sup> for a more comprehensive treatment of all the inputs and changes necessary to ensure some certainty of success.

### 4.1.2 The Key Requirements

This paper will not give a detailed analysis of all available contract documents. Civil engineering works can be complex and varied and most well established documents have evolved through many editions to cover all eventualities. We will instead concentrate on some general aspects as they effect both the small inexperienced contractor, and a road agency unused to administering many small contracts, and see how the new shorter contracts help (or hinder) the situation.

The first essential pre-requisite is that the document must protect the clients interests. The contract must ensure that the contractor produces work of the required quality, in the stated time and at the agreed price. This is especially important as many shorter contracts are not very rigorous on the requirements for a detailed work programme, method of working, or proof of skills of contractors employees. The reasoning is that if the nature of the works is relatively simple, and the contract period short, the risk for the client should be low and contract clauses can thus be safely simplified. However for labour-based work, particularly where new methods and procedures have been introduced, it is often necessary to have the method of working clearly spelt out, and the contractors experience guaranteed. These issues will be looked at under each relevant contract

Secondly the contractors position must be secured. As previously noted, most of these works will be awarded by one agency. The contractor is thus in quite an exposed position with possibly only one major client. Making claims or complaints in this situation can spell commercial suicide. Conversely, if the contractor is not paid on time his/her financial situation is probably sufficiently parlous as to also guarantee ruin. It must be recognised that substantial delays in payment are commonplace for government contracts in many developing countries.

While it is not the intention to shield the new contractor from the normal problems of business, it is essential that the contractor has some chance of discussing and negotiating with the client at a more equal level. Modern contract documents are moving away from the confrontational approach of variation orders and claims, settled by arbitration or the courts. There is a new emphasis on partnerships

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<sup>4</sup> Bentall, Beusch & de Veen. 1998. *Contractor Development for Labour-based Works, Summary Guidelines*. ILO Geneva

and “Compensation Events”, which can be referred to a neutral adjudicator. Although the terms are probably unfamiliar to most road agency staff in developing countries, the concepts are actually quite straight forward and provide some hope for a middle way in client/contractor relationships.

Lastly there is the issue of the workers. In the ICE (Institution of Civil Engineers) Conditions of Contract up to the 5<sup>th</sup> Edition there was a clause for fair wages resolution, and the protection of labour is covered by FIDIC (Federation Internationale des Ingenieurs-Conseils) 4<sup>th</sup> edition under clause 34. However even this clause is open to abuse and many projects have included additional requirements based on guidance given by the ILO. Similarly there is no explicit mention of health and safety under most modern contracts.

Workers in Europe are well covered by existing legislation so presumably it was no longer felt necessary to include that provision in recent editions. This is not the case in the developing world, where laws are often arcane and poorly applied. Child labour for instance is commonplace, and health and safety inspectors would seldom visit a rural road contract. Workers often suffer from poor or even dangerous working conditions and Trade Unions are rare for casual workers. Government employees usually have some protection, but the employees of small-scale contractors are potentially very exposed to abuse. Suitable clauses are very necessary for wage rates and conditions of labour for use in developing countries.

### **4.1.3 The Contracts**

#### **4.1.3.1 FIDIC Conditions of Contract for Works of Civil Construction, Parts I and II, 4<sup>th</sup> Edition, 1987**

These conditions are probably the definitive set for contracts tendered internationally. As such they are universally accepted by Roads Agencies and have become the model set for many developing countries. They been adopted and adapted for numerous labour-based road programmes in Africa and Asia.

The strong point of these conditions is that together with the options in Part II they can be assembled to cover almost any contingency with well designed and tested clauses. These conditions have to be the ones against which all others are compared.

There are particularly strong clauses 70.1 and 70.2 to cover variation in price linked to labour and material rates. There is even a clause to cover “subsequent legislation” for price changes caused by government edicts after the contract is signed.

On the labour side, as well as specific reference to insurance against accident to workmen (24.1 and 24.2), clause 34 covers everything from rates of wages and conditions, to supply of water, burial of the dead and observance of festivals and religious customs.

On the down side, the contract has 145 clauses and over 200 sub clauses. This is not a problem for an experienced contracts



department, but in less experienced hands such a document can be misunderstood, wrongly applied, or often simply ignored. Newer forms of contract, particularly the shorter forms, are being written in simpler language using shorter sentences in a style more accessible to the non-legal reader.

In the same spirit of accessibility, the concept of the engineer who both acts as the employers agent and as an impartial decision maker, is being replaced by the concept of a neutral adjudicator. The client will still have his or her representative to administer the contract but the adjudicator exists to resolve disputed between the client and the contractor. FIDIC 4<sup>th</sup> Edition is still firmly in the “engineer as decision maker” role. The contractors only recourse in disputes is through the arbitration process. This is not conducive to amicable settlements in our setting. Any recourse to arbitration will inevitable be seen as a challenge to the authority of the Road Agency staff, even if the issue is fairly minor. In the authors experience there has been no recorded instance of a small labour-based contractor taking a government agency to arbitration.

#### **4.1.3.2 The World Bank Procurement of Works, Smaller Contracts, 1995**

This set of documents is primarily designed for procurement under projects financed by the IBRD and the IDA. Specifically they are intended for works valued at less than \$10 million to be procured by International Competitive Bidding (ICB). National Competitive Bidding (where works are only advertised within the employers country) apparently require substantive changes to these Conditions. It is also recommended that more complex works such as marine works or water treatment plants use the Standard Bidding Document.

The contract contains several innovations on FIDIC 4<sup>th</sup> Edition. The Engineer is replaced by the Project Manager, although the role and function is substantially the same. However the concept of an adjudicator is introduced as an independent person to resolve disputes, before resorting to the arbitration process. However the Adjudicator does not have to be named in the project document, just the Appointing Authority<sup>5</sup>, which is used to appoint an adjudicator if the employer and contractor cannot agree on a choice.

Comprehensive clauses are included for currencies, price variation, advances, and approval of contractors staff. Generally the interests of the client and contractor are catered for as well as under FIDIC. However no clauses are included for worker conditions and even the insurance clause is less specific (although just as legally binding).

To summarise, this document is still a large document with 63 main clauses and 117 sub clauses. It is specifically aimed at ICB and would need to be modified for NCB which would be more in line with the nature of our works. Although it updates on some of the management concepts, it would appear to offer no substantial advantages over

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<sup>5</sup> an independent professional institution or a representative of that institution)

FIDIC for the specific purpose of developing the local contracting industry in the road sector.

#### **4.1.3.3 ICE Conditions of Contract, Minor Works, 2<sup>nd</sup> Edition, 1995**

This contract is essentially a shortened form of the ICE Conditions of Contract 6<sup>th</sup> Edition and follows the concepts and definitions of the 6<sup>th</sup> Edition, the FIDIC 4<sup>th</sup> Edition<sup>6</sup> and previous editions. The Minor Works Guidelines summarise the limitations for use as follows:

- the potential risks are judged to be small,
- the works are simple and straightforward,
- the contractor has no responsibility for the design of the permanent works,
- nominated sub-contractors are not used,
- the contract value does not exceed £250,000,
- and the period of completion does not exceed 6 months.

This results in a document of 13 main clauses and 69 sub clauses which would seem ideal for the type of work envisaged for small scale contractors. The contract allows the engineer to instruct for variations, and to suspend the progress of works if necessary. Clauses include for a programme of works, contractor's performance and insurances, retention money, liquidated damages for late completion, and a defects correction period. The contractor is covered by clauses for adverse physical conditions, interest on overdue payments and a procedure for settlement of disputes. Although there is a provision for valuation of additional work, there is no excess limitation on the value of such work.

However there are a number of important omissions. There is no provision for provisional sums, price fluctuations or advance payments. There is no obligation for the contractor to have a full time supervisor on site. There is no specific reference to worker conditions. Special risks such as outbreak of war (FIDIC 65.5) are not explicitly dealt with, although they do appear as an exception for contractors liability under "excepted risks". Perhaps most importantly there are no particular clauses for default of the contractor or the employer (as with 63.1 and 69.1 of FIDIC). The contractor's only remedy for non payment is compounded interest on the outstanding amount at 2% above the bank lending rate.

Finally the guidelines note that "there is no provision for amendment or addition to the Conditions of Contract and this should be avoided." As such these conditions are probably too limited and restrictive for our particular application.

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<sup>6</sup> The FIDIC Conditions up to the 4<sup>th</sup> edition are virtually identical to the ICE Conditions of Contract, with additional clauses to cover risks and price issues peculiar to international contracting

#### 4.1.3.4 FIDIC Short Form of Contract, 1998

This short form of contract was only released as a Test Edition in September 1998. It is recommended for works of a “relatively small capital value”, and is considered most suitable for “fairly simple or repetitive work of small duration”. However the document may be used for all types of engineering work with a variety of administrative arrangements, and “all essential commercial provisions” are included. Most importantly, users are able to introduce Particular Conditions to cater for special cases or circumstances.

The document consists of 15 main clauses and 55 sub clauses. For the employer, all the key clauses exist as noted for the ICE Minor Works, with the addition of more specific information on the contractor obligations, the particulars of the contractor representative, and more detailed requirements for the contractor Programme. Most importantly there is also comprehensive section on defaults by the employer or the contractor, with details of payment on termination by either party.

The defects section is very brief and the employer will need to ensure that routine testing of works is properly covered in the specification. The problem of languages is addressed under 1.5, Communications, with the provision for a “ruling language” in the Appendix.

There is no provision for advance payments to the contractor but the Notes for Guidance recommend that the provision in the full conditions of contract can be included as a particular condition. Similarly, although there is no specific clause for inflation, the Notes for Guidance suggest the insertion of a clause 11.1 for the rise or fall on the cost of labour, materials etc, for works of a longer duration. The employers responsibilities under Force Majeur are clearly spelled out in clauses 6.1 and 13.2.

The Settlement of Disputes introduces the concept of a neutral adjudicator, as with the World Bank document. Rules for Adjudication and an Adjudicators Agreement are included in the Short Form of Contract. The Adjudicator only has to be appointed once a dispute needs to be settled. However the Notes for Guidance recommend that the Employer propose an Adjudicator at tender stage to avoid delays. This would also ensure that the Adjudicator becomes part of normal practice rather than a special circumstance. Arbitration can only be resorted to after adjudication fails. Arbitration is covered by essentially the same provisions as the FIDIC 4<sup>th</sup> edition.

Workers conditions are not included, but it should be straightforward to import clauses from the FIDIC 4<sup>th</sup> Edition as required. Insurances for the workers are specifically included as an item in the Appendix.

The only item that appears at variance with the needs for small contractors is the provision for late payment by the employer. The contractor is not covered by a compound interest clause, his only recourse is to suspend or terminate the works. This appears to be too drastic for our circumstances, and may not be a very viable option for a contractor with a large labour force to pay. It would be useful if the

provision for interest was included as in clause 60.10 of the FIDIC 4<sup>th</sup> edition.

To conclude, taking into account the few points mentioned above, this contract document would seem to be the ideal starting point for future small works contracts. Obviously the document is new and untested, but given the underlying experience with FIDIC conditions there are unlikely to be any problems with individual clauses.

#### **4.1.3.5 The NEC Engineering and Construction Short Contract (Draft 1998)**

To give some history, the NEC Engineering and Construction Contract is a radical departure from the CCSJC's<sup>7</sup> series of ICE Conditions of Contract. In response to a commission in UK into the workings of the construction industry<sup>8</sup>, the NEC contract was designed to foster a more partnership and less confrontational approach, with an emphasis on Compensation Events to cover all the usual areas for claims resulting from variation orders, delays, ground conditions etc. In fact clause 10.1 of the core clauses requires the Employer and Contractor to "act in a spirit of mutual trust and co-operation".

The Engineering and Construction Contract (ECC) is not a single contract but a suite of contracts which share a core body of definitions and interrelationships. The 2<sup>nd</sup> Edition was published in November 1995<sup>9</sup>. The NEC Panel has subsequently been developing a short form known as the Short Contract. Unfortunately this contract is not yet finalised although publication is anticipated in January 1999.

The intention of the short contract is to provide an alternative to the Engineering and Construction Contract for works which:

- do not require sophisticated management techniques
- comprise straightforward work and
- impose low risks on both the employer and the contractor

The resultant document is still under scrutiny by the panel and external experts. Currently the 15<sup>th</sup> Draft is just about to be finalised. As an aside it is a salutary experience to observe the amount of expert attention that is necessary to produce a sound document. It brings home the point that ad hoc clauses drafted for individual project requirements is not the best approach for developing a local construction industry, no matter how worthy the intentions.

Currently the Short Contract has 9 Clauses and 88 Sub Clauses. In terms of depth of coverage it falls somewhere between the Minor Works Contract and the FIDIC Short Form of Contract. The document

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<sup>7</sup> Conditions of Contract Standing Joint Committee, representing the UK Institution of Civil Engineers, Federation of Civil Engineering Contractors and the Association of Consulting Engineers

<sup>8</sup> Sir Michael Latham, 1994. *Constructing the Team* HMSO

<sup>9</sup> The first edition published in 1993 was known as the New Engineering Contract (NEC)

was studied by a number of experts involved in small contractor development to assess its relevance outside the UK market<sup>10</sup>. Their conclusion was that there would be considerable benefit in adopting this contract because of its simplified form and the opportunity for developing a better and more harmonious relationship between the contractors and the employers. However as with the Minor Works Contract there were a number of items that would need to be included to make the contract viable for international use. Unfortunately, as with the Minor Works Contract, it was not straightforward to simply include extra clauses without distorting its intention. The proposals are still being considered by the drafting committee.

Areas of the contract that need reinforcement are very similar to those under the Minor Works Contract. The following points are extracted from MART Working Paper No 11.

- To ensure compliance with a labour-based approach where this is government or road authority policy it would help to specify the key representative of the contractor on site and his or her experience as well as details of intended equipment and labour components of the works. Ideally we suggest something as comprehensive as FIDIC 4<sup>th</sup> clause 14 which allows proper monitoring of the proposed method of working. This is one of the primary instruments for ensuring the labour-intensive aspects are being adhered to by the contractor
- A Clause similar to 18.1 of the ECC on health and safety would help considerably to protect worker's rights. Some countries do not even have satisfactory guidelines in this area and it might be necessary to specify. It would also be necessary to include a clause similar to the FIDIC 4<sup>th</sup> clause 34 to cover general conditions of labour.
- There is also need for a provision similar to option N of the ECC for price adjustment for inflation. Even though typical contracts will not exceed a year, inflation events of 100% mid contract are not uncommon. For example a government may impose increases in official minimum wage rates by more than this amount with no consultation or notice.
- There is need for inclusion of a provision for an advanced payment as with option J of the ECC. This is not so much to provide for mobilisation, but to ensure sufficient cash flow so that small scale contractors can pay their labour wages, which are typically 40 to 60% of their expenditure. These contractors will have very limited liquidity and usually be faced with prohibitive bank charges <sup>11</sup>.

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<sup>10</sup> Stiedl et al, 1997. *Note on the consultation draft ICE Short Contract*. MART Working Paper No 11

<sup>11</sup>MART Working Paper No 2 found that bank interest rates were between 15 and 48 % per annum in seven African and Asian countries surveyed with labour based roadworks projects.

Currently it seems that these provisions can only be allowed for in the Works Information section. The drafters would not approve the addition or modification of the actual Conditions.

The most important aspect of this document for those involved in small contractor development is probably the provisions under section 9 for disputes and termination. In much of the developing world the *Employer* is still usually the government in one form or other, and the contractor is in a very weak position regarding any form of negotiation. The *Employer's representative* will tend to also be a government employee rather than an independent consultant and thus have vested interests. To compound the situation the government employee is probably very poorly paid and seeks means to supplement his salary. Thus he may view even a small contractor as relatively affluent and a suitable source of "revenue". The contractor can of course resort to the courts, but with the government having a monopoly on contracts (and probably undue influence in the courts) this would not always be a wise move.

The role of independent *adjudicator*, to be nominated in the contract document, could be one way out of this impasse. It should be much easier for a contractor to seek help without resorting to law, and it might help to encourage contractors that some form of two-sided dialogue (other than bribes)<sup>12</sup> is possible. However it will not be easy to introduce without considerable changes to existing practice. The key will be to get this process accepted by government agencies, and to agree the procedure for identifying and remunerating the adjudicator. In many countries the consulting sector is only starting to develop, but small firms are beginning to emerge, often staffed by retired government officials who while not equipped to undertake large scale supervision works would be ideal to provide adjudicator inputs.

The above comments also apply to the adjudicator in the FIDIC Short Form of Contract. However in the ECC Short Form the adjudicator has a much higher profile, and must be appointed at the start of the contract. In addition there is no automatic referral to Arbitration. If the adjudicator's decision is not accepted, the dispute is referred to a Tribunal. The nature of the Tribunal must be specified in the Works Information, and may be Arbitration or a Binding Expert Decision or Disputed Review Panel. If there is no Tribunal specified, the matter will be dealt with in the law courts.

#### 4.1.4 Conclusions

Both the FIDIC Short Form of Contract and the NEC Short Contract offer attractive alternatives to full FIDIC Conditions of Contract for the development of small and labour-based contractors in the road sector. The World Bank Procurement of Works for Smaller Contracts is not significantly less complex than FIDIC and is mainly geared to

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<sup>12</sup> If this seems a little extreme it should be noted that FIDIC 4<sup>th</sup> Edition includes a specific optional clause covering bribes



International Competitive Bidding procedures. The ICE Minor Works contract is really too limited in scope for the type of work envisaged.

The choice is thus between the FIDIC and NEC contracts, and really comes down to attitude and acceptance. Most engineers actively involved in the developing world are more familiar with the FIDIC 4<sup>th</sup> edition contract document, which is essentially the 5<sup>th</sup> Edition of the ICE Conditions of Contract in content and style. Most existing contract documentation, especially in anglophone countries, also reflects the 4<sup>th</sup> Edition. Many of the terms already accepted as part of the NEC family of contracts will be unfamiliar outside UK. This is not to say that they are inappropriate, but just to recognise the need for extensive supporting guideline documentation and training to accompany and encourage their introduction.

From this perspective the most cost effective approach may be to concentrate on the FIDIC short form, including a set of Particular Conditions that would be appropriate for small contractor development as outlined in sections 3.4 and 3.5. It should also be feasible to take account of some of the comments from the MART Working Paper No 11<sup>13</sup> and the ILO Contractor Development for Labour-based Works<sup>14</sup> to agree on one additional Condition to ensure that labour-based techniques are adopted by the contractor where employment creation is a government priority.

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<sup>13</sup> Stiedl et al, 1997 op cit

<sup>14</sup> Bentall, Beusch & de Veen. 1998 op cit

## 4.2 AN APPROACH TO THE PREPARATION FOR AND SUBMISSION OF TENDERS FOR COMPETITIVE LABOUR-BASED CONSTRUCTION CONTRACTS

*James A. Crosswell and Robert T. McCutcheon, Directors Employment Intensive Engineering Consultants (Pty) Ltd, Johannesburg, Republic of South Africa).*

### 4.2.1 Synopsis

There has been a significant growth in the use of labour-based construction methods in urban areas, particularly for the installation of essential services. This is a departure from the general experience in Africa where labour-based construction has been largely limited to the construction of rural roads. The procurement process in urban areas has tended to focus on private sector contractors and as a result tender documentation has been prepared with a view to inviting tenders from a range of competitive contractors. The scope of many of the projects has been such that the contracts are relatively small, or alternatively contracts are arranged to be relatively small, and these contracts attract the interest of emerging contractors. These new entrants to the contracting arena are often unfamiliar with tender procedures and sometimes have difficulty in completing both the pricing and the formalities relating to competitive tenders. This paper offers some guidance as to the preparation for the submission of a tender in the form of a priced bill of quantities. In particular, ways are suggested in which the pricing can be more accurately determined using techniques which optimize the use of labour during contract implementation.

In contracts involving installation of essential services (particularly underground pipework), the detailed structure and organization of the contractor is important for the optimization of productivity. In addition, where workers are paid on a task basis i.e. for work completed, there is a need to ensure continual employment of all labourers on a site and this requires attention to what is termed team balancing. This concept acknowledges that the volume of a particular operation which is functionally linked to another operation may differ and that the production expected for different operations should determine the number of workers allocated to a particular operation. For example, it is commonly accepted that the task size (e.g. the volume of material to be moved) required for back-filling a trench is of the order of half the volume which is required

for the excavation operation. In simple terms this would dictate that there would need to be twice as many workers excavating a particular trench than back-filling to achieve team balance.

Team balance ensures that workers are fully engaged and, particularly in the light of the fact that task based workers are paid for the work they complete, that they have continual access to work and are not forced to be idle because other workers have not completed a preceding operation. A form for arriving at a balanced team size for functionally linked operations is proposed and some guide is given as to how this form should be utilized. In addition, some general guidelines are offered in respect of involvement with the general tendering process.

The authors hope that such guidelines as provided in the paper will both assist potential entrants into the contracting field and will also act as a framework for the preparation of contract documentation. The guidelines address the particular needs of potential tenderers at the time of tendering. Based on experience in South Africa the authors propose that it become a standard part of the pre-tender process that education be offered to prospective tenderers along the lines of the guidelines provided in the paper.

#### **4.2.2 Introduction**

There is a growing awareness that the opportunities available to small emerging contractors in what heretofore has been the more formal side of contracting will expand appreciably if the contracts are structured in such a way that access by the new contractors to the contracting arena is especially facilitated. Experience has shown that labour based or labour-intensive construction offers special opportunities for traditionally under-capitalized small contractors, but, for optimum integration, the entire spectrum from design through documentation to implementation has to be reviewed and adapted to suit the targeted contractor. The necessary paradigm shift commences with the funder or the employer who makes a conscious decision to provide opportunities for small contractors and particularly for small contractors using employment-intensive methods. This decision alone necessitates a careful examination of the design criteria and the way in which documentation is prepared and presented.

In addition, such an approach will invariably place special demands on either the employer or the design team to ensure that the targeted contractors are given every opportunity to successfully compete for the work on competitive basis. This support ranges from training in the basics of contracting technology, through tendering procedures and strategy, to contract implementation, including personnel management. In the authors' experience the best contractors are contractors who have an entrepreneurial spirit. They must essentially possess the necessary risk taker's attitude required for any entrepreneurial activities and contracting in particular. Having said that, the authors recognize that technical



skill and particular knowledge of the contracting industry and its procurement processes, may not be within the knowledge base of the entrepreneur. Much has been written about, and an extremely large amount of money expended upon, the training related to the construction techniques required for contracting, in this case labour-intensive contracting. However, since the emphasis throughout the world has largely been directed to direct labour, or "force account" type of construction, where there is no formal contracting environment or where competitive bidding for contract award is absent, managerial training of aspirant contractors i.e. owners of contracting businesses, has been lacking.

With the re-emergence of labour-intensive construction in South Africa strong emphasis is being placed on contracting and special attention has been placed on development of systems which provide the necessary support to the aspiring contractor. In particular, documentation and contract size have been adapted to facilitate entry into the contracting arena. Coupled with this has been an appreciable growth in the use of employment-intensive methods in the provision on urban infrastructure. Bearing in mind that much of world experience has been gained on rural projects and, in particular rural roads, the experience and available documents have needed to be adapted to suit the urban situation and, in particular, to comply with the norms associated with competitive bidding and contract awards. Much pioneering work has been done by the authors and others in the area of urban engineering coupled with contractor development and employment creation. It would seem that much of the pioneering work relating to the subject of this paper has been done in the Southern African region and transfer of this knowledge base is an obligation of those with the experience.

This paper does not attempt to deal with the entire spectrum of contractor development and training, but focuses on a few specific issues relating to pre-contract documentation preparation, tender preparation and submission, and contract monitoring for the purposes of relevant data collection to be used at the time of future tender opportunities. This approach has led to the consideration of more formal project management techniques to initially clearly define the objectives of the particular tender/contract process, and thereafter to ensure that these objectives are kept in mind at all critical stages, not the least of which is the post contract period when evaluation of the contract is supposed to be undertaken.

### **4.2.3 Tender Preparation**

As stated above it is often necessary for the funder or the promoter of a particular project to make a conscious decision to alter the time proven and comfortable procedures which may have developed in a particular environment. Once this decision has been taken it is similarly necessary for the design professionals to accept that the "off the shelf" solution will not be applicable (given the usual differences necessitated by design, specification and other contract

documentation for labour-intensive construction). This forced change of approach is sometimes resisted, not only because of the natural inertia within design offices, but because a precedent and format may not be readily available. Also, vital to this process is the perceived inability to accurately assess the projected cost of the works, because of a lack of experience in the use of large labour teams in a competitive environment. There is also a misplaced fear on the part of the contractors about the largely unknown consequences of returning to a labour-intensive method of construction. This is particularly so if there is a lack of exposure to the concepts of task based work and output based remuneration.

This paper does not attempt to convince the sceptical about the economic viability of a labour-intensive approach,<sup>1</sup> what it does offer is some guideline to designers as to how they can assess, with some degree of confidence, the likely cost of work using a more or less scientific and reproducible budgeting system. In the experience of the authors this single factor should encourage more confident and widespread use of labour-intensive methods because it will tend to remove the major mental constraint associated with the "unknown" area of costs associated with employment intensive construction methods.

Faced with the preparation of appropriate documentation and budgets, designers may find some use in the table entitled "Team Balancing Schedule" attached to this paper. This table will assist in the preparation of budgets but is also intended to be used by tenderers to determine the price at which an offer for a particular contract should be made. Obviously, in the hands of the specifier, previous experience and hopefully relevant data from a range of comparable projects, will be available to assist in the preparation of the project budgets for client approval. Even in the face of inadequate personal knowledge, reference to the literature will provide a strong indication as to the assumptions which should be made. Depending on the overall scale of the project or programme which is envisaged it is possible that a Choice of Technique Analysis may be appropriate, but this paper assumes that the basic decision about which operations are going to be targeted has already been made. The use of the table entitled "Team Balancing Schedule" plays its second and equally important role when a prospective contractor prepares his own unique bid. Experience has shown that whereas there may be considerable enthusiasm from a wide range of entrepreneurs, and possibly experienced contractors, for the work on offer, it is unwise to assume that a formal and reproducible price determination process will be followed.

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<sup>1</sup> Economic viability has long been proven for many civil engineering operations (World Bank 1986 ILO); in South Africa, as long as the work has been appropriately designed; contracted and organised (particularly training), many operations have been financially competitive. But that is a bigger debate with which we will not engage here.



The use of the table will undoubtedly offer a vastly improved foundation for decisions relating to costing. The efficient utilization of labour, partly assured by proper team balancing, makes up an important cost component of the bid. Indeed, in the hands of a labour-intensive contractor it is really only the cost of labour, and the management thereof, which offers an opportunity for competitive bidding. A clear understanding of the labour requirement is, therefore, vital for an informed determination of bid price. Indeed, all contractors are urged to follow a formal labour resource calculation, possibly using the attached table, rather than "guessing" what is, after all, the major discretionary cost within the tender. They would do it for a conventional equipment-intensive contract. All we are suggesting is that labour-intensive operations are treated similarly:

1. Within each operation identify activities and balance the team.
2. Balance the different operations.

The use of the Team Balancing Schedule will be expanded upon in Annexure A. In the hands of the specifier and during the document preparation period the use of the Team Balancing Schedule will give guidance as to the proper structure both of the specification and the bill of quantities. It will also give a good idea as to the probable duration of the contract given a labour-intensive approach. It is important to note that a decision needs to be taken which elements of the contract are to be constructed by hand (possibly to the exclusion of machines, as recommended in The Framework Agreement). and that these should be properly identified both in the specifications and in the bill of quantities. The additional work, pre-contract, to be undertaken by the designers and specifiers is necessary if the entire process is to be optimized. In a field which is seen to be evolutionary and where significant experience may be lacking, the greater the amount of clarity which can be incorporated into the tender documentation the better. It is submitted that it is unprofessional, and certainly unhelpful, for the designer or specifier to leave all decisions relating to the labour-intensive component up to the tenderer, particularly if the decision has been taken to target the labour-intensive approach using emerging contractors. The alternative is the possible exclusion of aspirant tenderers and the inflated or skewed pricing arising from an even greater uncertainty occasioned by the lack of clarity.

These forms have also been tested in another environment. They have been used in the SFD Labour-Based Programme for Small Scale Contractor Training in Egypt (1999) where the authors are assisting with the contractor training elements of the project. The forms proved successful and have been recommended for incorporation in future SFD funded projects.

It is strongly recommended that the bill of quantities used for labour-based construction and in particular for contracts involving small inexperienced contractors should be in an expanded form.

This format provides for a far greater work breakdown structure and thus does not rely to such an extent on the tenderer's understanding of the elements which make up an item to be priced. Uncertainty is largely removed, accuracy is improved and pricing is more realistic.

#### **4.2.4 Site Management**

Pursuing the "project management approach" it is advisable to have a formal system of control of resources on site. Such a system invariably exists, or should exist, in the conventional contracting arena and, therefore, the principles are fairly well known. However, a labour-intensive approach, particularly by an emerging contractor, brings with it a particular requirement for an appropriate, useful and easily comprehensible reporting system. Attached is a series of such forms, developed over time and modified through experience, which may be of assistance. Obviously, various contractors may have developed their own methods of recording, but what is important is that those things which are vital for the financial success of the contract must be recorded and must be carried forward to a reporting system which is of benefit not only to the contractor but also as a source of information to the Engineer or other adviser to the contractor during the currency of the contract. Experience has shown that one of the main reasons why records are not maintained is because there is no guidance or precedent. The attached forms are undoubtedly a tried and tested starting point. The purpose and guidelines for completion of each of the forms is given as an addendum to each form, but it is important to note that the documents should be seen as a "set" requiring discipline to complete to extract a maximum benefit.

#### **4.2.5 Training**

As mentioned above a considerable amount of training is normally available in the technical areas surrounding contractor development. However, another critical factor in the success of the "business" involves consideration of careful attention to issues which are essentially of a non technical nature, such as estimating and tendering, human resource management and general site control. Experience has shown that to encourage the involvement of new entrant into the contracting field every opportunity must be made available to provide support for aspirant tenderers. In South Africa the concept of tender advice bureaus have been proposed, but these can only effectively work in concentrated population areas. In the authors' experience where isolated contracts are being undertaken "design teams" have an obligation to provide all support necessary.

At Ilinge (Eastern Cape Province), for instance, a regular session was convened where the forthcoming tenders were discussed in detail and assistance was afforded to tenderers in the completion of the documentation necessary. In Soweto at the start of the secondary water mains replacement project aspirant tenderers



were required to attend training in bid preparation offered as part of the Project Manager's overall training and mentorship programme. In addition, it has been proposed in terms of the South African National Public Works Programme that any training budgets be split to include subjects which could be regarded as entrepreneurial as opposed to technical (vocational).

Business training is critical, but so is technical competence. It must be recognized that a successful contractor is both technically competent and managerially equipped to undertake the work. Technical competence can often be transferred "on the job" but to get to this position the entrepreneur must have gone through the process of tendering which involves skills and concepts related to, but not directly stemming from, technical expertise. There is also the opinion that this is so critical an area for the success of small contractor development and that it should become an obligatory part of any large project or programme that entrepreneurial skills be transferred, both in the lead up time to the project and during the entire project cycle.

#### **4.2.6 Conclusion**

Berentsen (1998) makes a special mention of the client/funders requirement that a reproducible and, hopefully, reliable method of estimation and control is implemented on any project. Given his wide experience both in labour-intensive construction and, more pertinently in projects funded by international aid agencies, his comments should be taken seriously. To allay the fears, perhaps understandable, relating to the apparent elasticity of the cost side of the project financial equation when related to invariably fixed budgets, budgeting procedures are essential. The alternative of having to curtail a project which has overrun its budget is available, but never desirable. The additional effort which is undoubtedly necessary to present a rigorously developed budget should be an accepted requirement of any project using innovative ideas.

As the use of competitive bidding in labour-intensive works, using private contractors, expands, and success is demonstrated, confidence will undoubtedly increase, however, it is vitally important that we move beyond the "pilot phase syndrome" which appears to dog virtually every major project or programme of which the authors are aware. If it is necessary the early stages of the programme must be defined as the "demonstration phase" with a definite contractual requirement that this phase be terminated with full evaluation at a pre-determined date. Moreover a part of the scepticism about alternative techniques is that they appear, at least to an outsider, to continually be "experimental". Strength should be drawn from the success of major rural road projects where the construction techniques have been successful. Major experimental endeavours related to small contractor driven construction, particularly in an urban surrounding, should be focused on the



preparation of proper documentation and the support and control required by the successful tenderer during the construction phase.

The authors trust that this paper will assist in that endeavour.



## Annexure A

### Team balancing schedule

1. **Purpose of this schedule:** This schedule can be used at various stages of the contract cycle.
  - i. During the design and specification phase use can be made of the Team Balancing Schedule to identify the exact scope of individual tasks and give direction to the compilation of the tender documentation.
  - ii. Tenderers can use the Team Balancing Schedule to calculate their bid.
  - iii. Contractors can use the schedule to check and test assumptions made at the time of Tender.

#### How to use the form

1. Enter the details of the contractor, project and list all of the operations which are required (these may be the items in the schedule of quantities or the work breakdown of the work which needs to be incorporated in the items in the bill of quantities).
  - 2.1 In the column marked 'A' enter the quantities of each operation.
  - 2.2 In column 'B' enter the task size i.e. the amount of work which has either been allocated to this type of task or the amount of work which the tenderer feels can be completed in a single task.
  - 2.3 Calculate the number of tasks which need to be completed by dividing the quantity by the task size ( $A \div B$ ).
  - 2.4 Estimate the number of workers which could be applied to this operation bearing in mind other concurrent operations and the overall size of the team. This need only be a guess at this stage to indicate the likely number of days required to complete the operation.
  - 2.5 In Column E enter the number of days required for the operation by dividing the number of tasks by the number of workers estimated. This will give an indication of the amount of time required for the operation for comparison with other functionally linked operations.
  - 2.6 **Very Important.** Determine the number of balance days i.e. the number of days which could reasonably be allocated to the operations which are functionally linked e.g. excavation, pipe laying and back-filling are functionally linked. Since it is not permissible to leave trenches open overnight these operations must be completed within one day. The number of balance days required for the linked operations is entered against all of the operations in the group (F).

- 
- 2.7 Determine the actual number of workers required to achieve completion of the operation on a task basis within the period selected by dividing the number of tasks (Column C) by the balance days (Column F). The number of workers should be rounded to the nearest whole number.
  - 2.8 Total up the number of workers required for each group of operations and determine the total number of workers required at any one time.

**Note**

1. Decide if the various functionally linked groups of operations are to be completed simultaneously or sequentially. If they are to be completed simultaneously then the grand total of the sub totals for each group will indicate the size of the team which is required to carry out the contract. If work can be carried sequentially then a careful inspection must be made in an attempt to maintain the size of the workforce and still maintain a balance of operation. If it is possible to hire and fire workers on a daily basis then the optimum team size as determined in accordance with the team balancing schedule for each group of operations will determine the workforce required on each day.
2. If multiple tasking (i.e. more than one task per worker per day or per team per day) is allowed then the necessary adjustments to the probable number of days will be required.
3. If the same workers are to complete all operations in a group e.g. excavate, lay pipes and backfill then the total number of workers required will be determined by the combined productivity over all sub tasks. This approach may best be achieved by the definition of a team task and the use thereof to determine the number of days.

**ANNEXURE A**

**TEAM BALANCING SCHEDULE**

CONTRACTOR		PROJECT		OPERATION (GROUP FUNCTIONALLY FUNCTIONALLY LINKED OPERATIONS)		QUANTITY TASK		No of TASKS		No of WORKERS		DAYS		BALANCE DAYS*		ACTUAL No WORKERS		SUBTOTAL FOR GROUP		COMMENTS		
						A B		C		D		E		F		G						
								A/B		Estimate		C/D		Actual		C/F						
1																						
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
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22																						
23																						
24																						
25																						
26																						
27																						
28																						
29																						
30																						
																			TOTAL WORKERS REQUIRED			

\*BALANCE DAYS MUST BE THE SAME FOR OPERATIONS WHICH ARE FUNCTIONALLY LINKED e.g. EXCAVATION/BACKFILLING/PIPELAYING

## Annexure B

### Task record - individual (weekly)

**Purpose:** This form is intended to be used by the Contractor to maintain the records necessary for site control and worker payment.

#### How to use the form

1. On a weekly basis the contractor will fill in the names and other relevant details of each labourer. If the contract has been run on the basis of teams then the team number can be entered. In addition, if the labourer occupies a designated position or has a special classification this can be entered under **Position**.
2. Each day the number of tasks completed by the particular labourer are entered in columns 1 to 7.
3. **Note:** The form is prepared on the basis that payments will be made once a week (i.e. once every seven calendar days). Day 1 is usually pay day because the previous cycle will have completed the day before pay day.
4. **Note:** Only completed tasks are to be entered. Tasks which are completed on a subsequent day are entered in the day on which they are actually completed.
5. **Total** is the total number of tasks completed in the cycle.
6. The **Task Rate** is the rate per task.
7. **Pay Due** is the total of total x task rate.
8. The last column can be used for payment purposes where the Payee signs in acknowledgement to receiving the amount due.

**ANNEXURE B**

**TASK RECORD - INDIVIDUAL (WEEKLY) (Complete Daily)**

CONTRACTOR		SHEET No														
PROJECT		WEEK ENDING														
1	NAME	Co No	Team No	Position	TASKS COMPLETED per DAY							TOTAL	TASK RATE	PAY DUE	RECEIVED	
					1	2	3	4	5	6	7					
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
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20																
21																
22																
23																
24																
25																
26																
27																
28																
29																
30																

**Note:**  
 1. Only tasks satisfactorily completed to be entered.  
 2. Partly completed tasks to be carried forward to next day.  
 3. Mark worker absent with an "A"

## Annexure C

### Task record - team (weekly)

**Purpose:** The purpose of this sheet is to maintain records similar to those in Annexure B but for teams, otherwise the use of the form is the same.

#### 4.2.6.1 How to use the form

1. This form is very similar to Annexure B, however, it is drawn up on the basis that the team will be paid for the work completed by the team and the distribution to individual members of the team will be done by the team leader.
2. The contractor completes the standard information on the form at the beginning of each cycle.
3. On a daily basis the contractor completes the number of people working per team and the number of tasks completed by the team. This information is both of assistance in determining the total amount due at the end of the cycle but also provides data for average productivity.
4. At the end of the cycle the total number of tasks completed is calculated.
5. The column headed "Rank" may be used for the purposes of an incentive between teams. **Rank** can either be based on actual number of tasks completed or on the average number of tasks completed per worker. This information can be published on site to provide a target for improved productivity.
6. **Payment Due** is the calculation of the amount of payment due to a team.
7. **Received** is a line available for the signature of the team leader to acknowledge receipt of payment.

**ANNEXURE C**

TASK RECORD - TEAM ( WEEKLY ) (Complete Daily)												SHEET No										
CONTRACTOR												WEEK ENDING										
PROJECT	NAME	Team No	WORKERS INVOLVED and TASKS COMPLETED per DAY							TOTAL TASKS	RANK	PAYMENT DUE	RECEIVED (Sign)									
			Day1	2		3		4						5		6		7				
			No.	Tasks	No.	Tasks	No.	Tasks	No.	Tasks	No.	Tasks	No.	Tasks	No.	Tasks	No.	Tasks				
1																						
2																						
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						
											TOTAL											

**Note:**

1. Only tasks satisfactorily completed to be entered.
2. Enter both number of workers and tasks completed by TEAM
3. Partly completed tasks to be carried forward to next day.
4. Mark team absent or not working with an "A"



## Annexure D

### Progress Records - (Weekly)

**Purpose:** This schedule records daily performance of the contractor's teams or workers. This also serves as a backup record of costs of labour by way of the record of **Total Payment**. This aspect can then be cross-checked to the Task Record forms (an important aspect of contract control).

#### **How to use the form**

1. The contractor fills in on a weekly (single cycle) basis the background information per team.
2. On a daily basis the daily output (number of tasks) should be filled in and alongside the accumulative situation is completed. On a daily basis it is, therefore, possible to see the accumulative number of tasks performed per team and this can be compared with the **Target for the Week** which is a predetermined number of tasks set per team as an incentive.
3. This sheet can be used to cross-check the figures arrived in Annexures B or C.



## Annexure E

### Supervisor's daily incident record

**Purpose:** To provide a centralised record of the daily happenings on a site. This form may be modified to suit particular circumstances, however the form should maintain as broad a range of topics as practical.

#### How to use the form

1. The background details of the contract are filled in on a daily basis.
2. At the end of the day the supervisor (contractor) will complete the various fields.
3. **Weather conditions:** Generalized comment about weather conditions with temperature and rainfall figures, if available (this will serve as a guide and indicator of productivity related to specific weather conditions).
4. **Resources:** This field needs to be customized to particular contracts, however, in the example there is room for numbers of workers in categories, task rate or other remuneration rates and also a record of the plant and small tools on site on a particular day.
5. **Task work completed:** A summary of the individual or team task completed in the day with the average number of tasks per task worker.
6. **Time lost:** The supervisor/contractor should fill in the number of tasks or person days lost through whatever cause (weather, strike or work stoppage or lack of information on site). This information needs to be taken into account when average productivities are calculated over the entire contract.
7. **Instructions or variations given:** This field is available for recording special instructions or variations issued during the particular day and should record who gave them.
8. **Visitors to site:** It is important that the contractor retain a record of who visits the site and for what purpose. This information may become useful in the event of a dispute or may simply be an indication of the involvement of connected parties in the progress on site.
9. **Work done:** This field is an important record of the progress for a particular day. It may have to be expanded if more than one task or group of tasks is under way. The essential



information is the **Target for the Day** and the **Start** and **Finish** position for that target. Depending on the particular operation a **Percentage of the Target Completed** can be calculated at the end of each day. This will help in setting realistic targets on future tenders.

**ANNEXURE E**

Sheet No

SUPERVISOR'S DAILY INCIDENT RECORD																			
CONTRACTOR:																			
PROJECT:																			
1. WEATHER CONDITIONS:																			
										DAY	DATE	Temp C	Rain mm						
2. RESOURCES:																			
2.1 STAFF		No	Comment	TASK RATES		Comment													
MANAGER				TASKWORKER															
ADMIN				TEAM LEADER															
TASKWORKER				OTHER															
TEAM LEADER																			
DAILY PAID																			
OTHER																			
2.2 PLANT ON SITE																			
2.3 SMALL TOOLS																			
PICKS			SHOVELS		KOEVOERT		HEEL BARRC		RAMES		PROFILES		HAMMERS		BUCKETS				
3. TASK WORK COMPLETED:																			
3.1 INDIVIDUAL TASKS										No					Average Tasks / Taskworker				
3.2 TEAM TASKS																			
4. TIME LOST																			
4.1 TASKWORKERS: ESTIMATED NUMBER OF TASKS:																			
REASONS:																			
4.2 DAILY PAID/ESTIMATED PERSON DAYS/HOURS:																			
REASONS:																			
5. INSTRUCTIONS OR VARIATIONS GIVEN:																			
6. VISITORS TO SITE																			
NAME		FIRM		REASON FOR VISIT															
7. WORK DONE (Brief description of work areas for the day, including any problems.)																			
TARGET FOR THE DAY (State units of measurement)										START PEG		FINISH PEG							
PERCENTAGE OF TARGET COMPLETED: %										ACTUAL FINISH PEG									
8. RECORDED BY: NAME: POSITION: SIGNED:																			

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# **5      LABOUR POLICIES AND PRACTICES IN CONTRACTING**



## 5.1 EMPLOYMENT...?? YES, BUT QUALITY EMPLOYMENT WITH FAIR WORKING CONDITIONS...!!

*Jan de Veen, Development Policies Department, ILO, Geneva*

With the turn of the century, employment generation and the fight against poverty have become absolute priorities in developing countries. This paper looks at the approach that the ILO has developed, involving both the public and private sectors, in reorienting investments in infrastructure towards: (i) increased participation by communities, contractors and consultants, (ii) a more systematic use of local resources, and (iii) the creation of quality employment.

During the 1970s and the first half of the 1980s, in promoting the use of labour-based approaches for infrastructure construction and maintenance, the ILO worked directly with government agencies in some 30 developing countries. During the latter half of the 1980s a significant shift took place towards increased involvement of the private sector, particularly in the implementation of civil works. Many countries initiated contractor development projects, while at the same time establishing an agency capacity to manage and monitor the contract work.

It soon became evident that constraints on the use of labour-based techniques by the private sector had more to do with the general problems faced by the contracting agencies and the small-scale contractors than with any basic difficulty with the techniques themselves. On the one hand, the contracting agencies generally have little experience and capacity in designing, awarding, supervising and administering contract work of this nature. On the other hand, contractors face a variety of problems related to obtaining credit, keeping an adequate cash flow, being paid on time and operating within very demanding contractual regulations. These problems exist whatever the technology employed. Any agency aiming to develop the capacity of small-scale contractors must, therefore, help them overcome such difficulties.

Small-scale local contractors proved very successful in carrying out labour-based irrigation and rural road works for several reasons. First, the intensive use of locally available resources required relatively limited capital investments in heavy equipment (raising capital and particularly foreign exchange is a big problem for small contractors), but instead drew heavily upon the contractors' knowledge of local people and conditions (a mostly unexploited strength of local contractors). Second, development programmes aimed to establish a reasonable working environment, e.g., introducing administrative systems that allow timely and regular



payment for work done, packaging contracts in a size which could be handled by contractors and facilitating credit for indispensable light equipment for hauling and compaction. Third, technical and business management training was provided, enabling the contractors to perform efficiently both in terms of managing labour-based sites and in running their businesses.

However, if programmes of this nature are to expand to a nationwide scale in a successful and sustainable manner, it is vital that a long term approach is developed. First, national relevant training programmes for both public and private sector trainees have to be established. Management and technical training for higher and medium level supervisory staff (or, in the case of small contractors, the contractor himself or his site agent) is absolutely indispensable. The programme will also need to train high level staff in the supervising agency to prepare for and manage the bidding process, review bids, negotiate contracts, and supervise work in progress. Second, in line with the development and growth of the programme, tools and light equipment of appropriate type and quality should be procured, with mechanisms established to make these items available to the small contractors. Third, productivity and cost data need to be collected in order to set acceptable unit rates, based on worker productivity and agreed minimum wage levels (which may require collective agreements for this type of work). Finally, steps should be taken to ensure adequate local (e.g., through earmarked levies for road works, or taxes on agricultural products co-funding irrigation schemes, local taxes for water supply) and external funding to replicate pilot operations on a larger scale.

### **5.1.1 Working Conditions**

The use of labour-based methods through the private sector is potentially more risky than a situation where a government agency directly executes the work. In the latter case, the agency concerned will normally automatically apply the national laws, agreements and labour regulations related to the workers employed by it. But, where contractors are involved temptations exist to increase profit margins by under-paying workers or in other ways to reduce costs by lowering working conditions. Fortunately, many local contractors consider good working conditions essential for their relations with their workers and the long-term prospects of their enterprise. Most are, therefore, keen to know and apply the relevant labour regulations, to treat their workers fairly and to pay them regularly and in time. A recently published Guide<sup>2</sup> deals with capacity building for contracting in the construction sector and identifies the key issues to be dealt with in setting up and implementing employment-intensive infrastructure programmes through the private sector. Part 9 of this Guide discusses the principal labour

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<sup>2</sup>“Employment-Intensive Infrastructure Programmes: Capacity building for contracting in the construction sector”, P. Bentall, A. Beusch and J. de Veen, ILO, Geneva, 1999.

issues as these concern the contracting agency, the contractors and the workers.

If labour-based infrastructure programmes are to grow and expand, it remains essential to give the right priority to labour issues and to introduce regulations that avoid worker exploitation. The best guarantee for large-scale and sustainable labour-based programmes - whether executed by the private or the public sector - is a motivated and fairly treated workforce, as well as implementers (Government ministries, contracting agencies, consultants and contractors) who are aware of the principal labour issues and interested in applying fair standards and working conditions!

So, what are the most important issues to consider? As a first consideration, child labour and forced labour should be avoided through the application of the related labour legislation in the country concerned. To ensure that children are not employed in labour-based projects, a uniform system of identification of workers can be used, for example by the project issuing labour-based worker identification cards showing, among other things, the age of the worker.

*The International 'Minimum Age Convention' states that:*

*'No person under the age of 15 should be employed or work.*

*No person under the age of 18 should be employed or work in hazardous circumstances.'*

In respect of forced labour it must be ensured that 'voluntary' contributions are truly voluntary, in other words that the workers concerned work for their own benefit and are not forced in any way.

Here, the relevant international conventions state:

*'Work or service should not be exacted from any person under the menace of any penalty or under circumstances where the person has not offered himself or herself voluntary.*

*Work or service should not be exacted from any person:*

- *as a means of political coercion;*
- *as a method of mobilizing and using labour for purposes of economic development;*
- *as a means of labour discipline;*
- *as a punishment for having participated in strikes;*
- *as a means of racial, social, national or religious discrimination.'*

Then, workers should get a fair wage, at least equal to minimum wages or to applicable collectively bargained wage levels where these exist. Where these do not exist or where they are clearly irrelevant to the labour-based sector, an attempt should be made to negotiate an agreement with the social partners involved. The wage level for unskilled agricultural labour or the closest comparable



regulated wage for similar work could be used as a starting point for such negotiations, leading to a collective agreement. There are also clear guidelines on the use of payment in kind (food or other) or partial payment (incentives for community initiatives) for works of this nature.<sup>3</sup> It is equally important - both for the employer and the workers, although for different reasons - that wages are paid regularly and on time.

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<sup>3</sup>See Annex 3 of “Employment-Intensive Infrastructure Programmes: Labour policies and practices”, D. Tajgman and J. de Veen, ILO, Geneva, 1998.



The International Convention on protection of wages states:

‘Wages should be paid in cash money.

Where wages are paid partially in the form of allowances in kind, such allowances should be appropriate for the personal use and benefit of the worker and his or her family, and fair value should be attributed to such allowances.

Employers should not limit in any way the workers freedom in using wages.

Workers should be informed of any deductions made from wages, and national regulations should set down conditions for deductions from wages.

Wages should be paid regularly

Wages should be paid on working days, at or near the place of work.’

Furthermore, there is the issue of ensuring a minimum level of social protection. Although it will be very difficult to arrange for social security schemes in this sector, an essential minimum is some form of insurance coverage for work-related injuries, complemented by measures to prevent accidents on work sites. Where contracts are concerned, the related costs should be borne by the responsible contractor, who in turn should be in a position to pass on these costs to the client through a specific item in the contract.

Equal treatment of male and female workers is another issue to be taken seriously. Men and women should get equal pay for comparable tasks, as well as equal access to employment and higher level supervisory and management jobs. Experience shows that, if special efforts are not made, women’s participation remains generally low. Special efforts could include advertising the jobs in places where women are usually gathering; avoiding administrative requirements which are difficult for women to meet; considering the possibilities of part-time involvement of women, so that they can meet other obligations; promoting the use of female gangleaders and supervisors, etc.

The relevant International Conventions state:

‘Men and women should receive equal pay for work of equal value. Persons should be given equality of opportunity and treatment in employment and occupation. There should be no discrimination against persons in their employment and occupation on the basis of their race, colour, sex, religion, political opinion, national extraction or social origin, or on any other basis set out in national legislation.’

Finally, the basic minimum working conditions on sites should be defined and enforced. Minimum measures would include the availability of clean drinking water, first aid facilities and protective clothing/items for dangerous work such as rock-breaking.

Risks, particular to a special type of work or a situation in the project area, may also exist. For example, where work takes place in quarries or elsewhere with risks of landslides or falling rocks, head protection should be provided. If there is a risk of landmines, they should be cleared before work proceeds in such an area.

The Convention dealing with safety and health in construction states:

‘All appropriate precautions shall be taken to ensure that all workplaces are safe and without risk of injury to the safety and health of workers.

Workers shall have the right and the duty at any workplace to participate in ensuring safe working conditions to the extent of their control over the equipment and methods of work and to express views on the working procedures adopted as they may affect safety and health.’

Of course, all this costs money, and may be difficult to enforce on many and dispersed work sites, particularly when the private sector is involved. Use should therefore be made of the tendering and contract system for this purpose. Simple contract documents should be introduced with appropriate clauses on the treatment of workers, dealing with the issues discussed above. The client - for civil works in most cases a government agency - should define the items of particular concern in the tender documents and be prepared to accept the additional costs involved as specified in the contractors’ bid. Similarly, the agency has the obligation to make timely and regular payments for certified work thereby enabling the contractor to pay the workers timely and regularly.

The development of such a ‘fair’ working environment will take time and effort, but is indispensable for labour-based programmes to last and for local, labour-based contracting firms to have a long term future. The involvement of representatives of government, employers and workers in defining appropriate standards, conditions and regulations is important. For this reason the employment-intensive infrastructure projects supported by the ILO strongly encourage the formation of contractors’ and workers’ associations, and the start of a dialogue between the social partners concerning the labour issues referred to in this article. The ‘Labour Policies and Practices’ Guide mentioned in footnote<sup>2</sup> presents the current experience on how these issues may be dealt with in the project environment. It also gives guidance and advice to government ministries responsible for civil works, labour and employment and to workers’ and employers’ organizations<sup>4</sup> on how to jointly make progress in this field.

<sup>4</sup>Upon request to ILO/ASIST or the Development Policies Department, ILO Geneva reasonable numbers of copies of this Guide will be made available free of charge to ILO constituents and labour-based practitioners.

## 5.1.2 Capacity Building Essential

World wide experience also indicates a growing need for institution and capacity building in this field. Both international and local consultants, and contractors, will need to know how to design and implement different technology options. Government agencies must be able to monitor and control different technological approaches. An analysis of the lessons learnt from implementing the different projects and programmes should allow one to develop various models for labour-based road contracting for countries with varying levels of experience in private sector works. One must recognise that if institution and capacity building are neglected, and the working environment is not modified to allow the effective use of the new methods, the results will inevitably be inferior, leading to failure in the longer term. Policies on technology choice and on creating an enabling environment for labour-based road contractors to compete effectively in an open market economy will need to be developed and implemented. At the same time, initiatives are required to expand knowledge of alternative technological approaches within universities and learning institutions.

As mentioned earlier, the growing involvement of the private sector in this work increases the risk of worker exploitation, unless relevant labour regulations are developed and applied. It is also necessary to improve the relevance of national labour laws to the type of employment provided in this field - involving large numbers of rural people, many of whom have not been formally employed before.

Inserting and discussing these basic concerns in educational and training programmes is essential to make students (the future policy-makers), Government staff, consultants and contractors aware of the importance of these issues, and to show how relevant labour regulations should be introduced and applied. This in turn will contribute to a healthy and sustainable expansion of labour-based infrastructure projects to large scale, nation-wide programmes, where all parties concerned (contracting agency, contractors, consultants, workers) can perform competitively in a good working environment with fair working conditions.

## Annex 1

### Summary of ILO policy on food components of workers' remuneration

Food aid used as a component of remuneration of workers on development projects can play an important role. In many countries, governments count on food aid as a relatively stable element of their national "investment budget". It has also been the ILO's experience through its employment-intensive infrastructure programmes that in areas with high inflation rates and supply shortages of essential consumer goods, workers appreciate receiving part of their wages in the form of "inflation-proof" food rations.

The ILO has established policy guidelines on the use of food rations as part payment of wages. These policy guidelines are based upon the ILO Convention on protection of wages, and reinforced in an ILO/WFP policy agreement based on this Convention.

The Protection of Wages Convention, 1949 (No. 95) - which sets out conditions relating to the payment of wages in cash as well as their payment partly in food - applies to all projects in which there is an employer-employee relationship (including public works and other projects where, for example, the State is the employer). This includes those projects where WFP aid is used as payment in kind to the labour employed.

**The Convention does not apply to projects not involving an employment relationship.** Such projects might include schemes for feeding independent farmers during a transitional period (when there is a food or income gap before the first crop becomes available from newly cleared land) or for providing food to a group of people (e.g., in a co-operative or a village engaged in community development) to enable or encourage them to undertake construction or other work strictly for the improvement of their own local community by supplementing their diet or making up for any temporary loss of food output as a result of this work. In these and similar cases where there is no employment relationship, there is no objection to providing food without other payment. Projects called 'self-help' schemes sometimes do, but in other cases do not involve employment relationships; Section 4 below further discusses this distinction.

Where there is an employment relationship and wages are paid, ILO policy on the food components of wages can be summarized as follows:

- a) only part of the remuneration may be paid in the form of allowances in kind, i.e., food. Those allowances should be limited to that appropriate for the personal use and benefit of the worker and his family, and the value attributed to them should be fair and reasonable;

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- b) where food aid is a component of remuneration, workers are entitled to receive at least 50% of their wage in cash. **The cash component should be at least 50% of the applicable minimum wage for the particular type of work.** The value of the food component can, however, exceed that of the remaining share of the wage. - This is often the case when the market value of food is higher than its nominal price, for instance in the case of local or national supply shortages.

*The above provisions apply in particular:*

- a) in works of irrigation and horticulture **to any workers other than farmers directly benefiting, to the exclusion of others, from such works;**
- b) in afforestation **to any workers employed on government holdings or other holdings in which they do not have a direct interest;**
- c) in construction of roads, housing, schools, health centres, wells or other community facilities, **to workers employed outside their own community.**

In making a distinction between wage-labour projects and those 'self-help' projects which do **not** involve an employment relationship, the main points to be considered are outlined below. As a starting point, it should be understood that calling a project 'self-help' does not automatically mean that workers in the project are outside of an employment relationship. Consideration must be given to:

- a) the distinction between persons working for their own immediate benefit and persons working for the benefit of third parties;
- b) the distinction, in local communal works, between the members of the community which is to benefit from those works and persons not belonging to that community;
- c) the distinction between local works in the direct interest of the community concerned and works of general public interest.

**Distinction between persons working for their own immediate benefit and persons working for the benefit of third parties.**

This distinction has been of importance mainly in connection with work relating to land, such as schemes for soil conservation or improvement, irrigation and afforestation. When such work has been undertaken by the owners or users of the land concerned (whether held under individual or communal tenure), there would be no objection to providing them with food as sole incentive, to the exclusion of a cash remuneration.

**Distinction in local communal works, between the members of the community which is to benefit from those works and**



**persons not belonging to that community.** In many cases, where local improvement works were to be carried out by the members of the community concerned, provision has been made only for the supply of food to participants. For the reasons previously indicated, where genuine self-help schemes are involved, no cash remuneration need be provided.

**Distinction between local works in the direct interest of the community concerned and works of general public interest.**

Questions relating to this distinction have most frequently arisen in connection with projects involving road works. Where relatively short stretches of link or feeder roads are concerned, which are intended to meet the specific needs of the local community in facilitating access and the marketing of produce, their execution on a communal basis with food as the sole incentive does not give rise to any objection. The situation is different where more important components of the national road network, and particularly main highways, are involved. Even if the communities providing labour are likely to derive some benefit from such projects, the specific local interest is outweighed by the benefit accruing to the wider community, and provision should accordingly be made for payment of a partial cash wage.

**Exceptions to the rule relating to partial cash remuneration in wage labour projects.**

In certain situations, it has been considered justified not to insist on the provision of cash remuneration even though the projects appeared not to constitute self-help schemes. One such exception relates to emergency situations when the existence or well-being of the populations is endangered, such as projects to combat the effects of drought or famine or for reconstruction in the wake of war or natural catastrophes. The duration and extent of such an exception should however not exceed what is reasonably required to meet the exigencies of the situation.



# **6 ACCESSIBILITY AND RURAL TRANSPORT**



## 6.1 IMPROVING ACCESS AND MANAGEMENT OF INTERMEDIATE MODES OF TRANSPORT IN SUB-SAHARAN AFRICA

*Jeffrey Maganya, Intermediate Technology Development Group, Kisumu, Kenya.*

### 6.1.1 Summary

The focus of transport planning in rural Sub-Saharan Africa has been around road construction, with the implicit assumptions that there would be sufficient motor vehicles on the roads to justify the investments.

In recent times some diagnoses of the rural transport issues in these countries have revealed the complex nature of the problem, and how this contributes to the now acknowledged limited impact of investment in the transport sector. One facet of the problem is that the transport demands and patterns of people in the rural areas where roads traverse do not influence investment decisions on roads. In particular no attention is paid to the means of transport by which rural people can take advantage of the transport infrastructure available to them.

Studies have shown that rural families and particularly women spend a considerable amount of time and energy in transport activities related to basic needs of water and energy. In addition, significant effort goes to journeys related to economic activities such as trips to markets for marketing and farm input sourcing. These trips are often made on foot. Little attention is paid to simple means of transport like bicycles or animal carts, even in areas that would be suitable for their use.

On the other hand motorised transport has demonstrated little relevance to the transport activities and patterns of rural people. Evidence suggests that presently transport demand in rural areas is for low speed, low volume short distance trips. Journeys sufficiently long to justify use of motor vehicles are infrequent and the cost outlay only justified in occasional situations.

This paper therefore explores the concept of intermediate means of transport. By this is meant “those means of transport that match the operational scale and needs, transport patterns and investment capacity of majority of people in rural areas”. It also looks at ways in which IMTs can be managed.

### 6.1.2 Introduction

There is emerging agreement within development circles and policy makers that the past transport planning policies are insufficient in meeting the access needs of most rural populations in Sub-Saharan Africa (SSA) and indeed many developing countries. The initial



development thrust was geared towards tapping the resources that are available in rural areas. This was mainly done via construction of railway lines and later, because of the inflexibility of these railway lines, the attention was focused to highways. The investment in physical infrastructure for motor vehicles was assumed would culminate in a situation where access needs of all would be broadly adequately catered for.

The economic development policy in post colonial Africa focused mainly on taxing agriculture to finance forced import substitution for industrialisation. This development model focused on the transfer of agricultural resources to finance industrialisation and social infrastructures as well as general government operations. Colonial regimes created cadres of clerks and functionaries to act as liaison with, and controllers of, the peasantry in order to re-orientated peasant growing patterns to satisfy metropolitan raw material requirements<sup>1</sup>. Prior to 1965 the leadership of Kenya and Tanzania devoted much effort to increasing their ability to manage and contain political conflict and thereby consolidate their position as the ruling elite. Both countries commenced a rapid expansion and Africanization of the civil service by building upon the administrative framework established during the colonial period<sup>2</sup>. Because the pre and postcolonial policies focused on the use of agricultural raw materials from rural areas, the drive for construction of infrastructure for motor vehicles has not changed. There has been since 1950's in Africa a rapid increase in the number of more reliable mechanical transport. This has necessitated the widespread construction of all weather roads, and since that time, roads have become major arteries of new growth in many areas rather than railways, providing door to door transit without transshipments of goods. Relative to railway roads can react more swiftly to the changing demands of an area and the needs of the individual. The construction and improvement of transport facilities have thus been over the years seen as playing a crucial role in socio-economic development of countries. The role of transport in rural economies can be seen in terms of stimulating increased agricultural productivity and output, improvement of linkages within rural areas and more recently creation of non farm employment through transport services.

Conventional transport planning and research in developing countries has been done mainly in the area of highway transportation. The emphasis has been on providing better highway and road facilities through better construction and maintenance methods as well as opening up of rural areas through the construction of feeder

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<sup>1</sup> Politics and Public Policy in Kenya and Tanzania. Edited by Barkan D. J. and Okumu J. J. Chapter 6. Class structure, peasant participation and rural self help. Frank Holmquist. Heinemann Educational Books-Nairobi (1984)

<sup>2</sup> Politics and Public Policy in Kenya and Tanzania. Edited by Barkan D. J. and Okumu J. J. Chapter 1. Comparing Politics and Public Policy in Kenya and Tanzania . Barkan J. D. Heinemann educational books- Nairobi (1984)



roads to encourage the development of economic activities in less developed regions. Although in some countries Appropriate Modes of Transport (IMTs) like bicycles, cycle rickshaws, donkey carts etc. are used, little effort has been put into research aimed at improving the existing IMTs. There have been little deliberate and conscious programmes that encourage the use of these modes and at the same time improving the technological application of these modes to suit the conditions of developing countries<sup>3</sup>.

### 6.1.3 Rural Travels and Transport Patterns

In most of the developing world especially in Sub Saharan Africa rural people expend a lot of time and effort in transport activities related to basic subsistence, economic and social needs. Transport problems associated with production and marketing reduces opportunities for income generation in agriculture and trade. Poor accesses to health care or educational facilities affect the quality of life and social development. Studies have shown that rural families and particularly women spend a considerable amount of time and energy in transport activities related to subsistence needs of water and energy. In addition a significant amount goes to journeys related to economic activities such as trips for marketing and farm input sourcing. Many of these trips take place on foot remote and far removed from the highway and road system. Mainly because of lack of government and institutional support access to IMT is limited and the options are fewer even in areas where these would be suitable for use<sup>4</sup>. On the other hand many developing countries are having problems expanding and/or maintaining their current road network and foreign exchange shortages have limited the importation of vehicles, spare parts and fuel. Motorised transport has also demonstrated limited relevance to transport activities and patterns of rural people. The table below shows goods and transport modes that are central in transport for rural people in Western Kenya.

There is growing recognition in Africa of the level of transport burdens undertaken by rural communities to meet their basic needs, and of the degree to which these limit their social and economic development. There is also a parallel recognition that the conventional approaches to rural transport and access, with their focus on roads and motor vehicles are largely failing to address the transport needs of rural people. Poor access to socio-economic services has led to isolations, which in turn is a major contributing factor to poverty<sup>5</sup>.

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<sup>3</sup> Kaira C. K. (1983) Transport Needs of Rural Populations in Developing Countries. Karlsruhe university, Karlsruhe.

<sup>4</sup> Needs Assessment for non Motorised Transport in Western Kenya (1995). Rural Transport Programme. IT-Kenya P. O. Box 2260 Kisumu Kenya

<sup>5</sup> Integrated Rural Accessibility Planning and Rural Access Interventions. (1996) Fatemeh Ali-Nejadfard. ILO Assist Harare

## Goods transported and the mode of transport used in western Kenya

Goods Transported	Main Mode of Transport
Water	Head loading Wheelbarrows Bicycles
Firewood (For domestic Use)	Head loading
Firewood (For Sale)	Head loading Handcart
Agricultural Produce From Fields	Head loading Wheelbarrows
Agricultural Produce to local market Centre	Head loading Matatu <sup>6</sup> Wheelbarrows
Agricultural produce to posho mills	Head loading Bicycles

Source: Needs assessment for non-motorised transport in Western Kenya. IT-Kenya's Rural Transport Programme.

### 6.1.4 Intermediate Modes of Transport

Ownership of transport modes is limited in rural areas in Sub-Saharan Africa. Much more limited is ownership of motorised modes of transport. The use of motorised transport in addressing the transport demands of rural populations is limited because of the costs of purchase or hiring motorised transport, and the absence of the more advanced types of infrastructures that are required for motorised transport to use. To fulfil the access needs of rural areas in developing countries more appropriate measures need to be undertaken. These measures should increase the usability of IMTs and include the improvement of village level infrastructure including access roads, footpaths and footbridges; improvement of village level IMTs; positioning facilities and resources closer to rural people and introducing and increasing options of IMTs devices available in rural areas.

The introduction of IMTs in an area has various social and economic effects. The main advantages of IMTs are that they match closely the

<sup>6</sup>Any Motorised Vehicle that has been adapted to carry passengers and goods, these vehicles vary from sedans to minibuses to lorries.



use and management abilities of the owners. They are also more efficient than head loading and their manufacture can be tailored to the users needs. The manufacture, sales and maintenance of IMTs can also be decentralised thus within reach of rural populations and they are able to provide access to markets centres and classified roads from inmost areas. IT- Kenya's Rural Transport Programme is involved in activities that disseminate IMTs and improve non motorised transport services in rural areas in Kenya. The benefits accrued from these IMTs are;

- reduction in time and effort that goes into subsistence activities;
- improved and more timely transport of produce from the farm;
- improved methods of transporting sick people from health institutions;
- employment creation through provision of local transport services;
- reduction in time taken for travel to markets, main roads from inmost areas.
- improvement of linkages within rural areas.

In many smaller markets handcarts and donkey carts are used as a main means of hauling goods and transport of water within most of Sub Saharan Africa. In many parts of Uganda and Western Kenya bicycles are increasingly being converted into taxis. An example in the point is the bicycle taxi operation in Kenya's third largest town Kisumu along a distance of about 17 Km. The service employs about 300 bicycle taxi operators and 130 bicycle owners lease their bicycles to be used in the trade. The service transports 4600 people per week and generates to the local economy Kshs 3.3 Million (US\$55,000) a year<sup>7</sup>. In Ndhiwa area in south western Kenya IT-Kenya's Rural Transport Programme is involved in an activity aimed at using bicycle pulled ambulances to access health institutions for members of the community who live far away from health institutions. The table below sows the use of bicycle ambulances between the month of March to September 1996. The cost of the ambulance trailer is Kshs 5,000 (US\$ 83.33) and IT-Kenya's Rural Transport Programme has leased them to rural health centres in south west Kenya on hire acquire basis.

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<sup>7</sup> Socio-economic Study of Bicycle Taxi Operators in Kibos Area. (1996). Rural Transport Programme IT-Kenya P.O. Box 2260 Kisumu Kenya

### 6.1.5 Use of Bicycle Ambulances (Between March and September 1996)

Institution	Month acquired	Number of times used	Charge per trip (US c)	Total income (US \$)
Institute for Rural Development	March	9	35	3.13
Sori Nursing Home	March	90	87	78.26
Got Kojowi Clinic	June	0	-	-
Agenga Health Centre	May	0	-	-
Mirogi Catholic Health Centre	May	3	52	6.96

Source: IT-Kenya's Rural Transport Programme evaluation. Priyanthi F. and Keter S.

### 6.1.6 Issues that Affect the Management and Sustainability of IMTS

The way of introduction of IMTs in an area has direct bearing to the sustainability of the device. The process of introduction of IMTs in many rural areas is complex because of

- the different physical features of rural areas;
- the economic ability of the people in an area and;
- the social beliefs and attitudes of people in relation to the IMT.

An introduction and dissemination process of IMTs should include a component of parallel introduction of efficient but simple manufacturing technologies to reduce production costs or improve quality like a Jig and wheel bending machine. There should be a component that increases the capacity of local manufactures to carry out ongoing adaptation in existing designs in order to reduce costs, increase efficiency or facilitate use of locally available resources and skills and the demonstration and introduction of potentially beneficial IMTs from other areas.

The concept of appropriateness should revolve around people investment and management capabilities and transport needs. In western Kenya, IT-Kenya working with rural people in introducing improved IMTs identified that the most important consideration for investing in a transport vehicle is:

- price of the vehicle;
- availability of IMTs and access to local repair and maintenance;
- versatility of use;

- durability of vehicle;
- ease of propulsion;
- loading capacity of a vehicle; <sup>8</sup>

There exist two support systems for introduction management and sustainability of IMTs.

### **6.1.7 The Government**

Broad government policies have the inherent ability to influence the micro decisions in relation to IMTs choice and use. Governments therefore have a major role to play putting in place policies that promote the use of IMTs. Bilateral and multilateral donor/lending agencies and NGOs also have a big share in the shaping the direction and face of development. They should have policies that encourage IMTs especially in their transport and transport infrastructure support to government and local communities. Such policies include:

- Policies that encourage decentralisation decision making on locations of facilities and services and issues of promoting access such as introduction and promotion of IMTs, construction and maintenance of paths/tracks through self help
- IMTs despite their social economic relevance are still expensive and policies that improve the availability of credit in rural areas and for small-scale users and entrepreneurs should be encouraged. Rural credit institutions and branch banks should be established to ensure physical access to credit in rural areas. The banks and credit institutions should adopt a friendly stand towards small and micro entrepreneurs.
- All actors in development led by governments should adopt policies that encourage technology dissemination. Government financed science and technology institutions should be reformed so as to devote more of their time and resources towards appropriate products including IMTs
- Most producers of IMTs are localised metal smiths and are forced to work with scrap metal for most or all their production in order to compete with mass-produced IMTs made by the formal sector or imported. The playing field would be greatly more level if tariffs were selectively placed on imported IMTs or tariffs on steel were relaxed.
- In countries such as Kenya where scrap metal dealers need to be licensed there should be review of licensing procedures for scrap metal dealers. If the licensing of scrap metal only allows wealthy

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<sup>8</sup> Increasing and Improving Available Options of non Motorised Transport in Western Kenya. Notes on the Meeting Between Potential Purchasers of Transport Devices and the Producers. (1995) Rural Transport Programme IT-Kenya P.O. Box 2260 Kisumu Kenya

individuals to succeed they may not be well placed to respond to the needs of the metal workers who produce IMTs.

### **6.1.8 Development Agencies and the Private Sector**

Development agencies should help in the piloting and/or dissemination of transport best practices in areas where they operate. Development agencies have more flexibility and are able to influence government policy by the showing the best practices in action. This will encourage both the government and private sector to invest in the field. More development agencies should also start looking at access as a major contributor to poverty and thus be an agenda on the high list for poverty reduction type projects. Agencies that offer micro finance can also start looking at the income generation from village level transport services as bona fide income generating activities and provide loans to support start up of the businesses.

The private sector plays a big role in the dissemination and sustainability of the IMT use. Bicycles are more common than the rest of the IMTs because of the fact that they can be bought off shops easily and also the repairs and spare facilities are relatively more common.

The private sector in this sense means all players using IMTs for economic or social profit and this includes CBOs, individuals, shopkeepers or local youth who operate handcarts or bicycle taxis.

### **6.1.9 Conclusions and Ways of Promoting IMTs**

Having seen the real and potential benefits that IMTs could have in rural areas of developing countries, there should be renewed vigour to create an atmosphere that encourages the uptake and use of IMTs. The adoption of appropriate policies and measures and development assistance would contribute to addressing the constraints, and to stimulating wider recognition of IMTs as important vehicles to improving the access situations in many rural areas in developing countries. There is a general policy environment that overlooks the choice of efficient low cost technologies employed in small scale enterprises in developing countries and more preference is given to bigger capital intensive ventures. Relative to the importance or potential importance of IMTs in developing areas, policies that encourage the use of IMTs in most sub-Saharan Africa are wanting mainly because of the implicit nature of access problems. Access problems are a major problem in development and one of the ways of tackling it is increasing access and capacity to manage IMTs in sub-Saharan Africa.

## 6.2 STAKEHOLDER PARTICIPATION IN RURAL ACCESS ROAD PRIORITISATION: THE SOUTH AFRICAN EXPERIENCE

*Vivienne Lipman, Senior Policy Advisor, South African Department of Transport*

### 6.2.1 Introduction

In South Africa, as in most of the continent, the demand for rural access roads is far in excess of what can be supplied in the face of limited resources. Road authorities are often presented with a long list of demands for roads and with communities lobbying for their roads to be given priority. In this situation, it is essential for the authorities to have a uniform approach which enables them to compare roads and to rank them in order of priority. Given the overwhelming demand for roads and the political pressures, the authorities must be able to defend any priority order. They, therefore, need to employ a methodology that is both scientifically robust and transparent to the communities in need.

Both in the KwaZulu Natal province's Community Access Road Needs Study (CARNS) and the Eastern Cape Rural Access Road Study (which was undertaken as part of the Moving South Africa long term strategy for transport in South Africa) methodologies which included community consultation in the prioritisation of rural access road needs were adopted. This methodology not only created a climate of trust but also contributed to a high level of co-operation with communities who now understood the prioritisation process. The Eastern Cape Rural Access Road Study combined desk top studies with on-site assessment and the ranking of priority roads by elected community representatives.

The roads which were studied were not those which could be evaluated in terms of an economic cost benefit analysis as they would generally give negative results because of low vehicle usage. Some 80 per cent of South Africa's rural population resides in villages and dense rural settlements, rather than in areas where commercial farming is feasible. Whilst there may be some economic return most of these roads can only really be justified from a social perspective. The question which Moving South Africa tried to answer was "to what extent should we invest in providing basic access roads, and which communities should receive priority?"

## **6.2.2 The Moving South Africa Project**

In 1997 and 1998, the South African Department of Transport undertook a study called the Moving South Africa project. The aim of this project was to develop a strategy for meeting South Africa's transport challenges for the 21<sup>st</sup> century and to map out a 20 year strategic framework for the transport sector. Moving South Africa aimed to break out of the mould of thinking about immediate short-term solutions to addressing the major structural problems which inhibit our ability to deliver on the major goals of South Africa's Reconstruction and Development Programme (RDP) and Growth, Employment and Redistribution (GEAR) strategy.

As part of the information collection phase of Moving South Africa, an attempt was made to quantify the rural road needs in South Africa by looking at all the existing studies. The figures in the various studies differed so widely and also contained so many gaps that it was decided that it would be impossible to come up with a reliable figure rural roads needs for the country. Given limits in time, resources and reliable existing data, the Moving South Africa team decided that the best usage of available resources would be to develop and test a methodology for identifying and prioritising rural access road needs. It should be noted that the rural road network in South Africa is in reasonable (although deteriorating) condition and therefore it was decided that the main gap in the provision of transport infrastructure in rural areas was not the network itself but rather community and village access to the network.

## **6.2.3 The Kwazulu-Natal Community Access Roads Study (CARNS)**

In looking at various South African and international methodologies for identifying and prioritising rural access road needs, the Moving South Africa team was impressed with work that had been undertaken in the KwaZulu-Natal province as part of CARNS. CARNS had produced a methodology which combined community consultation with a transparent methodology which could be explained to the community while at the same time being sufficiently rigorous to satisfy the professionals. The Moving South Africa team made various adaptations to the CARNS methodology, most of which have since been adopted by KwaZulu-Natal in recalculating their priorities.

## **6.2.4 The Moving South Africa Eastern Cape Rural Access Road Study**

The Eastern Cape Province was chosen because it is one of the poorest parts of South Africa with a Human Development Index (HDI) of 0.507 compared against the overall South African value of 0.705. The Eastern Cape itself has widely differing levels of development with the previously "black" areas (the former homelands of Transkei and Ciskei) ranging from as low as 0.08 in Xhora to a high of only 0.36 in Mdantsane. In contrast some of the traditionally "white" areas have



an HDI of 0.96. In addition, 62 % of the population of the Eastern Cape is rural. High unemployment levels (over 50%) are also evident in the province. With such high levels of poverty and most of the population being rural, the Eastern Cape provided an appropriate setting for the study.

South Africa has well developed methodologies for prioritising road investment where there is an economic return. In areas like the Eastern Cape, many of the rural access roads would show a negative economic return on investment using these methodologies because of the low levels of motorised traffic which would make use of these roads.

## **6.2.5 The Methodology**

The methodology is divided into two parts - the first part explains how roads were prioritised in the study within each of the 37 districts covered by the study of the Eastern Cape. The second explains the methodology for allocating funding between the 37 districts.

### **6.2.5.1 Prioritisation of road projects:**

When evaluating a number of roads, all of which show negative economic returns, it is often difficult to prioritise whether one road is more important than another. The Moving South Africa study attempted to provide a uniform approach which enables one to compare roads and rank them according to their “points per kilometre” rating. The system is based on the probable usage that would be made of the road by the community (assuming the road is properly maintained). Points are allocated not only for the size of the community served by the road but also for the various facilities along the road which are used by the community at large. The facilities include health, social and administrative services, agricultural activities, educational facilities, businesses and places of worship.

The total points are divided by the length of roads to give a rating value per kilometre. This effectively takes into account the relative cost of the projects. If this is not done then longer roads will generally rate higher than shorter roads.

A desktop study was undertaken to gather basic data. Fortunately, a geographic information system (GIS) existed which gave the locations of schools, clinics, villages and the formal road network. Populations for villages were also available on the GIS. An initial prioritisation of access roads was made on the basis of ensuring that villages have an access road linking it to schools, clinics and the formal road network.

Information was collected for 37 district councils. Each district council has a Transitional Representative Council (TRC) which is the current district level government. The TRC was used to access community participation in each district. The TRC members and community members were provided with data capture forms and 1:50 000 topographical maps of their areas. They were tasked with recording the road side features and population served by the roads.

They were also requested to mark the positions of the roads on the maps. Training and assistance was provided for this fieldwork exercise. In many of the districts, passenger transport forums were already in existence and these forums were used as the community representatives.

Points were allocated to each of the roads identified by the community/TRC using the merit assessment system described above. The priorities were then explained to the community. The results were compared with the findings of the desktop study and differences in the findings were discussed with the community. Both sets of data were retained with an agreement that before investments are made, decisions would be taken with the community which of the priority lists would be used.

#### **6.2.5.2 Prioritisation between districts:**

The methodology used four criteria for prioritising the districts in which road infrastructure would be upgraded. These criteria were population size, development potential, human development and accessibility. Quantifying and combining the four criteria using district-based statistics provides a means of distributing funds on an equitable basis that takes into account need within economic growth potential scenarios.

The development potential index proved the most difficult to calculate as many of the factors which should ideally be included are not predictable let alone quantifiable. We constructed development potential indices for the Eastern Cape rural districts using the following variables:

- natural water resources measured length of river per district
- terrain conditions using length of 100 metre contours
- gross geographic product (GDP) adjusted to reflect the rural contribution
- economic interaction potential calculated as the accessibility-discounted GDP of all surrounding districts
- agricultural production potential calculated using factors such as climate, slope, soil type and the availability of water
- forestry production potential
- the likely effect of government supported spatial development initiative (SDI) projects on the district.

Fortunately, the information on natural water resources, GDP and agricultural and forestry potential already existed.

The human development index is calculated using three components - life expectancy at birth, educational levels and income levels.

The accessibility index was measured using the road network density and the population density.



Using all the above factors with various weightings, the 37 rural districts in the Eastern Cape were given priorities for investment in rural access road infrastructure.

### **6.2.6 Design Standards**

Road design standards and literature in South Africa generally do not address the lower order rural access roads and very little documented guidance is available to establish appropriate standards. Rural access roads are often referred to as “non-engineered” and are usually constructed without formal design drawings other than a typical cross-section and drainage standards, relying on the experience of the road builders alone. The following issues need to be considered in the development of appropriate standards:

- all weather accessibility
- restricted budgets
- labour enhanced construction and maintenance possibilities
- LOW TRAFFIC VOLUMES
- the need to reach as many communities as possible.

Any road improvement should be assessed and planned to meaningfully connect into the formal road network and that where possible, continuity should be established to open up areas and to link up communities.

Traffic volumes for rural access roads in South Africa are generally less than 30 vehicles per day due to low vehicle ownership and low economic activity in rural communities. The importance of an access road is therefore not necessarily a function of the volume of traffic. The importance lies more with the type of traffic using the route, whether it be public transport or service providers like mobile clinics, teachers or agricultural vehicles. An assessment of traffic should therefore not only focus on the volume of traffic, but also on facilities and population served by the road.

The standards proposed should be discussed with local communities before commencement of construction to avoid any misunderstanding with aspects such as road widths and realignments.

### **6.2.7 Recommendations**

A major problem for rural development in South Africa is that rural infrastructure investment does not occur in a sufficiently integrated manner. Planning by education, health, housing, water, road and other authorities does not occur with full co-operation between the relevant authorities. For optimal returns on rural investments, it is vital that all the various functional authorities involved in rural investments co-ordinate and integrate their planning processes.

Access roads are the vital link between communities and the formal road network. A programme to support access road construction without regard to other road network needs within the Eastern Cape



would *de facto* continue the physical, social and economic isolation of rural populations from the mainstream economy. It is recommended that a more integrated and co-ordinated approach be adopted.

To identify and meet the needs of the rural communities, community participation in planning is vital. The costs of the public participation should be budgeted as part of the costs of service provision.

### **6.2.8 Conclusion**

In South Africa, the methodology used in the Moving South Africa Eastern Cape Rural Access Road Study and the KwaZulu-Natal CARNS study has been accepted by all the provincial road authorities. The Department of Public Works has awarded poverty relief funds for road construction in the KwaZulu-Natal and Eastern Cape provinces based on the findings of these two studies.

The methodology used in the Moving South Africa study is not wholly ideal, but given the lack of existing data and limited resources, it is the best that could be achieved. If we had more time and resources, we would, for example, have preferred to have increased the level of community participation. It is, however, also accepted that the data available in South Africa on, for example, agricultural potential, may not be readily available in many other African countries and this would make the use of a similar methodology difficult.

The Moving South Africa question of “to what extent should we invest in providing basic access roads, and which communities should receive priority?” cannot be answered from a transport perspective alone. We need to question what we are providing access to, where will future investments in other economic and social infrastructure be made and what will these investments be, which communities are sustainable and what other developments will affect that community.



# **7    CAPACITY BUILDING AND CONTRACT MANAGEMENT**



# 7.1 LABOUR-BASED WORKS IN LESOTHO: CAPACITY BUILDING AND DEVELOPMENT OF CONSTRUCTION INDUSTRY

*Celestina Pama, Ministry of Works, Labour Construction Unit, Lesotho*

## 7.1.1 Background

Developing countries have poor people, many of whom are underemployed or unemployed. Considering the case of Lesotho, the employment situation is unstable.

### 7.1.1.1 Problem analysis in relation to Lesotho

- a) Increase in poverty which is characterised by many problems. Some of them are:

#### **Inaccessibility**

Inadequate rural infrastructure in the form of roads resulting in severe communication problems. Major problem to the economic and social development of remote areas is the isolation of these areas from any economic and social services like markets, schools, clinics, etc.,

#### **Unemployment**

Unemployment and underemployment are major problems in Lesotho. It is estimated that out of a population of about 2 million, labour force of 988,700, 340,000 is unemployment. The yearly increase of labour force is 20,000. There is a continuing decline of employment opportunities for Basotho in RSA especially in the mines which used to employ about 40% of Lesotho's labour force as migrant labourers.

- b) All road construction works were carried out by international contractors and consultants specialising in machine intensive construction methods and that resulted in most of the money going out of the country.
- c) Road works activities were mainly carried out by Force Accounts Units. Some of these activities, especially routine maintenance were not operating effectively and efficiently.
- d) There is a continuous brain drain for the technical staff. Most of the technical staff leave Lesotho to work in other countries. This is mainly due to better remuneration in those countries.

The combination of the above problems create a serious employment challenge for Lesotho. For a poor, labour surplus economy like

Lesotho, the basis for advocating labour-intensive schemes is indeed solid. It has been proved that the introduction of labour-intensive construction techniques is a viable proposition for a wide variety of different public work schemes.

#### **7.1.1.2 Overall government policy**

- a) Overall government policy in the 5<sup>th</sup> five year (91/92 – 95/96) and 6<sup>th</sup> three year (96/97 – 98/99) development plan is reduction of poverty amongst the targeted poorest in Lesotho through social, economic and environmental projects based on a community led approach.

The Government decided to follow a number of strategies to reduce poverty. Some of them were:

- development of the private sector, this sector was to be the growth engine of the economy.
  - creation of employment in all activities which could be carried out by labour.
- b) The major government policy in construction is the development of construction industry. This involves use of local consultants, suppliers and contractors in construction.
  - c) Privatisation of all activities which can be carried out efficiently by private sector.

### **7.1.2 Labour Construction Unit (LCU)**

The LCU is one of the Labour-Based road construction and maintenance Departments in Lesotho. This department implements some of the above government policies in order to reduce poverty.

#### **7.1.2.1 Objectives of the LCU**

- a) The primary objective of the LCU is to provide functional rural road communication in order to promote the socio-economic conditions of rural people.
- b) To promote and propagate the use of efficient labour-based construction and maintenance in Lesotho, thus creating both assets and employment.

#### **7.1.2.2 LCU Historical Background**

Labour Construction Unit was established in 1977 with the objective of creating employment for retrenched mine workers from RSA. LCU was established as a pilot project and then it expanded gradually. All the construction and maintenance works were carried out by force account teams up to 1993.

In 1993, Lesotho Government entered into an agreement with IDA. One of the objectives of the agreement was development of Small Scale Contractors. Under this agreement 20 contractors were trained

for a period of two years. During the second phase of GOL - IDA agreement (1996 - 20001), the plan was to train 36 contractors. To date, 24 contractors have been trained. The training course for the last batch of 12 contractors started in February 1999 and it will end around October 1999.

All road rehabilitation, periodic and routine maintenance works are carried out by contractors. All routine maintenance contracts are allocated to all trained contractors using the ballot system, with the purpose of increasing capacity for contractors. All rehabilitation works and periodic maintenance are allocated to contractors following standard bidding procedures. Currently all road construction and upgrading are carried out by force account teams.

#### **7.1.2.3 Responsibilities of the LCU**

- a) The original responsibility was upgrading and maintenance of the 2,300km of feeder roads.
- b) In 1997 LCU was given additional responsibilities:
  - Construction and maintenance of some of the Lesotho Highlands Revenue Funded (LHRF) roads projects, and
  - Maintenance of the LHDA feeder roads around the dams.

#### **7.1.2.4 20 Year Programme**

In order to construct and maintain 2,500km of roads, LCU prepared a twenty-year programme. The latter was divided into four phases:

##### **Phase I (1990 - 1992)**

##### ***Improving rural road communication***

The major concentration was on research and development of standards, specification, and work methods.

##### **Phase II (1993 - 1998)**

Providing large scale employment opportunity for rural people

LCU worked hard to increase the capacity for implementation of more road activities in order to create employment for more people. At the same time, LCU was committed to keeping standards and quality in order to reduce maintenance cost and impact on environment.

##### **Phase III (1999 - 2004)**

##### ***Expansion phase***

Expansion of LCU activities throughout the country. Increase in employment and rural infrastructure creation.

##### **Phase IV (2005 - 2010)**

##### ***Rehabilitation and maintenance phase***

Shift from construction and upgrading of roads to rehabilitation and maintenance.

### 7.1.2.5 Funding

LCU is currently funded by IDA, KfW, EU and Irish Aid. In addition, there is a lot of money from LHRF which is for community projects.

### 7.1.2.6 Current Challenges which faces LCU

- LCU has been given additional responsibilities.
- There is insufficient capacity to implement additional funded road projects which have to be constructed and maintained.
- The rate of construction is low as compared to the plans.

### 7.1.2.7 Strategies which are used to answer the challenges

LCU increased its capacity to implement the Programme by:

- orienting and using local consulting firms
- development of small scale contractors in road construction and maintenance
- training more force account technicians

## 7.1.3 Orientation and Use of Local Consultants

As stated above, LCU uses different strategies to answer the challenges but the major concentration will be only on the first strategy.

### 7.1.3.1 Why LCU uses consultants

- to increase in-house capacity for implementation of expanded Programme
- to reduce the design and supervision burden of road works on over - stretched technical and managerial staff of the LCU
- the works are simple and they can be implemented
- to allow LCU to act solely as a client as opposed to the current situation of a combination of client and consultant

### Types of consultants used

#### *Long-term Consultant*

LCU has engaged four individual local consultants. The positions are funded by IDA & GOL. The positions were advertised on local papers and South African papers. The best technically evaluated applicants were engaged. The salaries were paid according to their financial proposal.

#### *Consulting firms*

Since its establishment, LCU has been using in-house engineers (LCU Engineers and Technical Assistants) to design, supervise and monitor the construction works. Due to many requests for road projects to be constructed, LCU will use local consulting firms who are experienced in road construction.



### 7.1.3.2 Types of consultants' contracts used

LCU uses two types of contracts:

a) Lump sum contract

This is used where scope can be defined (e.g. design works)

a) Time-based

This is used for supervision

### 7.1.3.3 The roles of consultants

The major roles that consultants play are:

- survey and design of the selected route to suite labour-based method of implementation.
- preparation of BOQ, contract documentation and invitation of bids.
- evaluation of bids and recommendation to the LCU of the accepted bid.
- contract administration
- mentorship
- training of LCU technical staff
- training of contractors.

### 7.1.3.4 The selection procedure for consulting firms

LCU's objective is to register all local consultants with minimum resources who want to implement labour-based works. Local Consulting firms who were interested in implementing labour-based works were requested to submit their company profile. All the consultants who submitted their company profile were invited to the orientation workshop. At the workshop, the plans of LCU including selection procedure for consultants were explained to them.

#### **a) Selection procedure for road construction and rehabilitation consulting firms is as follows:**

##### *i. Experience*

LCU only orient the consulting firms but does not train consultants. Therefore LCU uses experienced consulting firms. The firm must have designed two projects, one of which is a road project as well as having supervised three projects, one of which being a road project.

##### *ii. Resources*

Manpower: A firm should have within their structure the following expertise;

- One qualified road design engineer who has designed at least one road.

- One resident Engineer preferably with labour-based experience, who has supervised 3 projects, one of which must be a road.
- One materials Engineer or has a commitment for a material Engineer who will be available as necessary.
- One surveyor.
- As a firm they should have all the necessary support staff for the project.

**Note**

It is desirable that the majority of the key professional staff proposed should be permanent employees of the firm or have an extended and stable working relationship with it.

Proposed professional staff must, at a minimum, have the experiences indicated above, preferably working under conditions similar to those prevailing in Lesotho

*Other Resources*

- one office - established with drafting facilities.
- must have guaranteed access to a laboratory.

*Legal Status*

The firm must be registered in Lesotho as a company, and have a certificate of professional indemnity or a bond to be eligible.

**b) The selection procedure for road rehabilitation and periodic maintenance consulting Firms.**

The selection procedure was lowered because the works are simple and do not need major technical expertise. In order to register the consulting firm for the above works, he has to have the following:

*i. Manpower*

One civil Engineer preferably with labour based experience, who has supervised 3 projects, one of which must be roads.

Necessary staff for the project

*i. Other Resources*

Physical address in Lesotho

Must have access to a laboratory

*i. Legal Status*

The firm must be registered and licensed in Lesotho as a company and have certificate of professional indemnity or a bond to be eligible.

**7.1.4 Registration and Allocation of Works to Consulting Firms**

Annually, consulting firms submit their company profile showing clearly the resources they have. LCU is maintaining the register for



all consulting firms depending upon the set selection criteria. The consultants are classified into two groups. Group 1 is for consultants who have minimum resources for survey, design and supervision of all road works from construction to maintenance. Group 2 is for the consultants who have only enough resources to implement the rehabilitation and maintenance works.

The consulting firms are short-listed for the works which can be carried out by them. The requests for proposals are sent to them. The best technically evaluated bidder is recommended. If his financial bid is acceptable, the consulting firm is awarded a job.

### **7.1.5 Conclusion**

Overall objectives of LCU fall under overall government policies. LCU has been meeting a number of challenges in implementing some of the government policies. It has been successful in answering most of the challenges. We hope that by the use of consultants we can increase our capacity to manage the expanded programme. As stated earlier, there are other strategies followed in implementing this programme like development of small scale contractors and training of additional technicians to supervise the force account units.

The use of consultants is at its initial stage. The procedures mentioned above will be modified depending on experience gathered. The number of registered contractors may reduce due to the performance of some of the consultants or increase due to additional new interested consultants.



## 7.2 CONTRACTS WITH WORKS PAID BY KM AND CONTRACTORS IN 3 LEVELS

*Manoel A. Noronha, Project Co-ordinator at Zambezia and Tete Provinces Mozambique; Michael Madanha, Project Co-ordinator at Nampula Province - Mozambique*

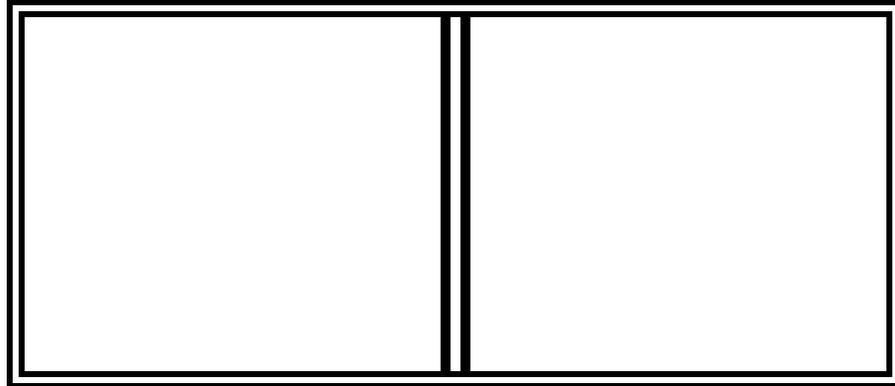
### 7.2.1 What is a Contract Paid by Km ?

It is an extremely simple contract encompassing works done, mainly measurements of complete services, then the prices are determined for:

1. Formation or construction of the road which includes all the tasks needed for the road to be complete.

They are:

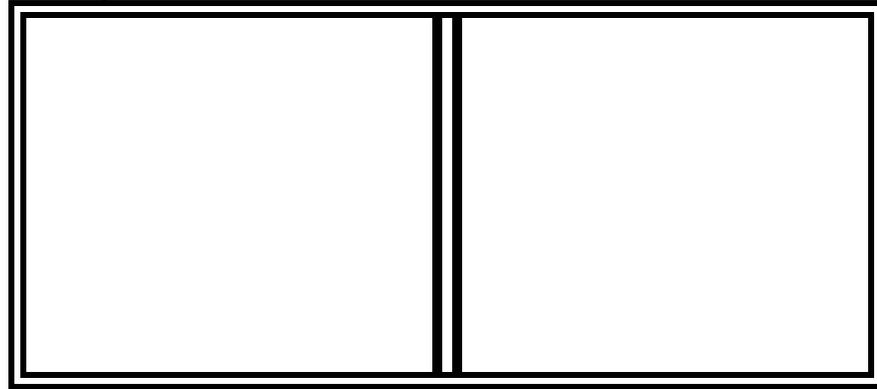
- Bush clearing, stripping and grubbing.
- Ditching.
- Formation
- Watering and compaction of the camber
- Scour check
- Grass planting.



2. Gravelling that includes:
  - Preparation of the gravel-pit and its accesses
  - Excavation of the gravel
  - Loading, transport and spreading
  - Watering and compaction of the gravel
  - Grass planting on the shoulders

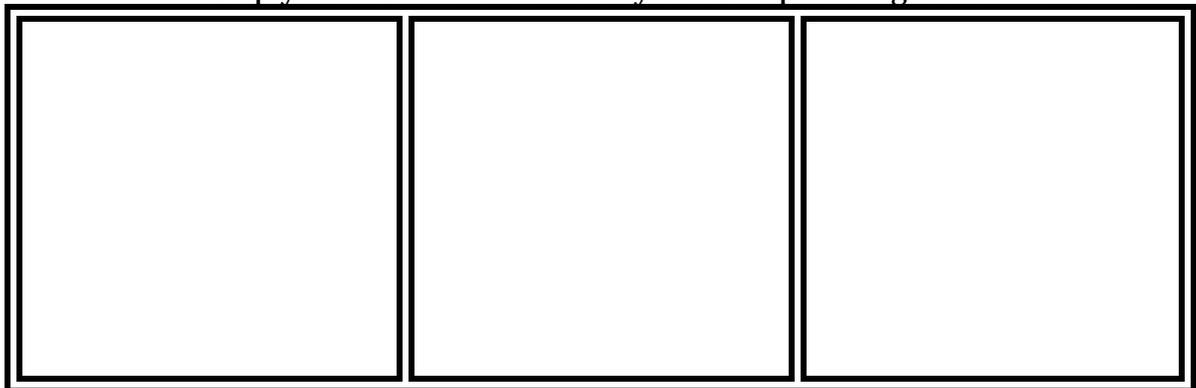


- Gravel-pit rehabilitation



3. Masonry aqueduct with a unit price.

Our aqueducts have a design pattern that is standard with a calculated price. In case of the aqueduct being multiple, we simply multiply the number of barrels by the unit price to get the total cost.



## 7.2.2 Why we chose the contract paid by km ?

### 7.2.2.1 History

Mozambique, as can be remembered, was ravaged by civil war from the time of attaining its independence from Portugal in 1975 until the signing of the peace accord in 1992.

- Most of the roads never been maintained since 1975 and have reverted into thick bushes.
- Sometimes, we do not even dare mentioning such terms like maintenance or rehabilitation but instead, reconstruction in absolutely virgin land.
- How can you then carry out feasibility studies?
- What of the calculating of volumes of cut and fill if you cannot even see a metre from both sides of the bushy paths?
- Who can dare venturing into a minefield?
- And to make worse the situation, will you be prepared to confront the poisonous Mozambican cobras?
- Hence the fixed unit prices are relief.



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### 7.2.2.2 Other factors

The result of so many years of civil war was a complete destruction of almost every type of infrastructure, education was not spared in the process. Schools were destroyed. The consequences of this is a prevailing low level of education, today among contractors, supervisors, foremen, etc. This makes the whole process of measuring quantities an insurmountable task as the engineer in charge might be the only person to come up with correct measurements.

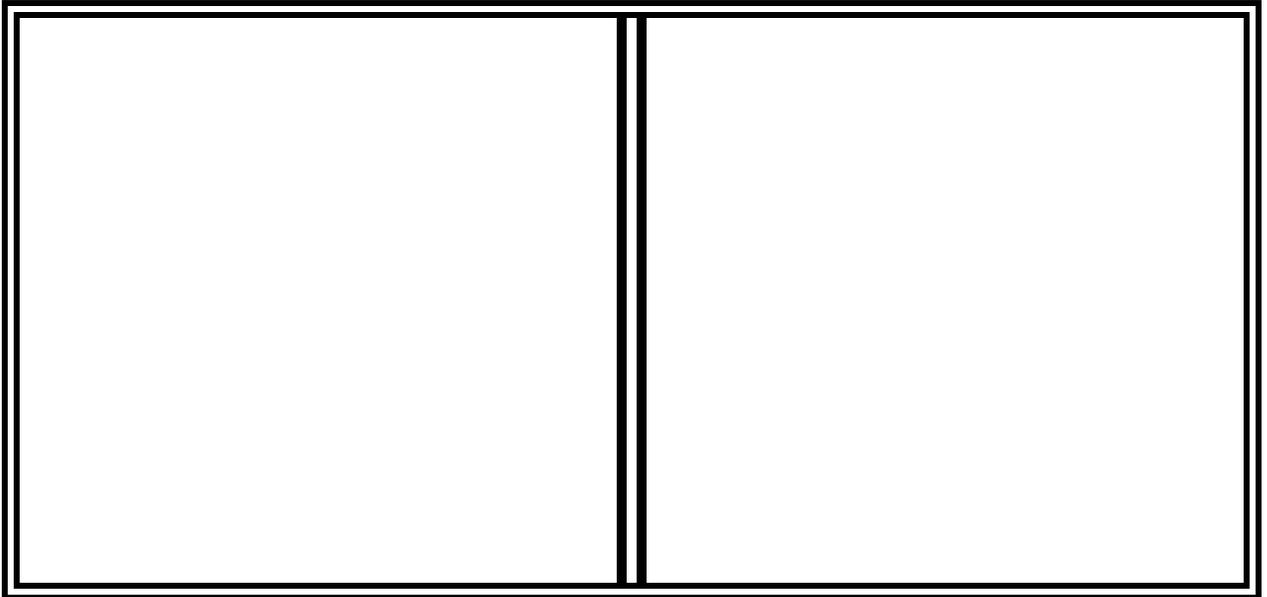
A fixed price /km is the only viable solution!

**One may ask:**

What is a square meter?

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What is a cubic meter ?



There is always a very big difference between measurements presented by a contractor and those presented by the fiscal (supervisor for the client). This demonstrates the low level of education between the two. Often, wrong calculations are used.

Let us imagine, that our fiscals have learned how to take areas and to do correct measurements. For the roads where the conditions of construction are bad, it will be necessary, for at least 3 or 4 fiscals to attend to the quality of the works and respective measurements of quantities.

#### 7.2.2.3 Advantages

- Easy measurement of works
- Avoid conflict with the contractor, because there is no mistake in the measurement.
- The measurement can be done within a few minutes with the fiscal and contractor participating..
- One fiscal only can attend all the works.

#### 7.2.2.4 Disadvantages

- The contractor visits the place of the future works, signs the contract, but mainly when he starts carrying out the work, he cries loudly and complains a lot, alleging that the road is in worse situation than he had imagined and prices do not compensate fully.
- Sometimes, the volume of work is more than anticipated in general measurement.



**Solution:**

An extra work amount is always added to the contract value to pay extra works.

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**7.2.3 How we arrived at the km prices ?**

**7.2.3.1 First pilot project**

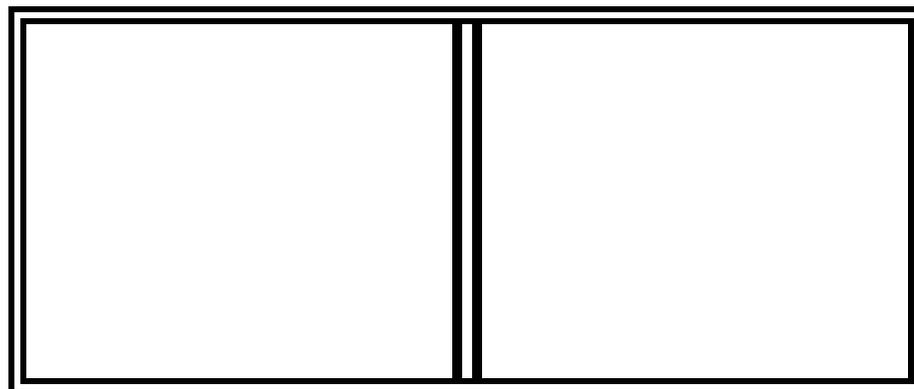
During two years of the pilot project, evaluations were carried out to determine the cost/km in different types of terrain (flat, undulating and mountainous).

Basic standard equipment was used:

- 1 tractor
- 2 trailers
- 1 hand roller
- water drums
- a set of hand tools.

Similar task works were used and a fixed number of people employed, i.e., similar conditions of work were applied and reasonable and acceptable costs were calculated for various activities in different terrain.

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### 7.2.3.2 Considerations

In flat terrain, soils were found to be generally softer than in mountainous terrain resulting in more work being done as tasks increased.

- More drainage structures had to be placed in mountainous terrain.
- Works in mountainous terrain were more time consuming and costly.

### 7.2.3.3 Calculating the number of people necessary to construct the road.

For our calculations we considered a daily production of 250m of opening and camber for our road which has a width of 4 to 5 metres depending on the types of ground, flat, undulating and mountainous.

#### Flat ground

Work	Task Man/day	People no.	Extra people	Total
Topography	alignment and demarcation	12	2	14
Weed	200m <sup>2</sup>	10	2	12
Tree removal	Indefinite	10	4	14
Construction excavation and spread	3 - 4 m <sup>3</sup> (10m of ditch=3.2m <sup>2</sup> )	50	5	55
Drainage	2 scour checks 2 mitre drains	10	2	12
Importing soils	3.3m <sup>2</sup> excavation and transport	10	2	12
Compaction	watering	3	1	4
	roller	18	4	22
	rectification	4	1	5
Camp	assistant	1	-	1
	guarding	2	-	2
Sub-total		130	24	154
Skilled workers	foreman	1	-	1
	group chief	7	-	7
	apontador/logistic	1	-	1

	human resource	1	-	1
<b>TOTAL</b>		<b>140</b>	<b>24</b>	<b>164</b>

### Undulating ground

Work	Task Man/day	People No.	Extra People	Total
Topography	Alignment and demarcation	12	2	14
Weed	200m <sup>2</sup>	10	2	12
Tree removal	Indefinite	10	4	14
Construction excavation and spread	3 - 4 m <sup>3</sup> (10m of ditch=3.2m <sup>2</sup> )	50	7	57
Drainage	2 scour checks 2 mitre drains	15	3	18
Imported soils	3.3m <sup>2</sup> excavation and transport	15	3	18
Compaction	Watering	3	1	4
	Roller	18	4	22
	Rectification	4	1	5
Camp	Assistant	1	-	1
	Guarding	2	-	2
<b>Sub-total</b>		<b>140</b>	<b>27</b>	<b>167</b>
Skilled workers	Foreman	1	-	1
	Group chief	8	-	8
	Apontador/Logistic	1	-	1
	Human resource	1	-	1
<b>TOTAL</b>		<b>151</b>	<b>27</b>	<b>178</b>

### Mountainous ground

Work	Task Man/day	People No.	Extra People	Total
Topography	Alignment and Demarcation	12	2	14
Weed	200m <sup>2</sup>	10	2	12
Tree removal	Indefinite	10	4	14
Construction excavation and spread	3 - 4 m <sup>3</sup> (10m of ditch=3.2m <sup>2</sup> )	50	10	60
Drainage	2 scour checks 2 mitre drains	20	3	23
Imported soils	3.3m <sup>2</sup> excavation and transport	20	3	23
Compaction	Watering	3	1	4
	Roller	18	4	22
	Rectification	4	1	5
Camp	Assistant	1	-	1
	Guarding	2	-	2
<b>Sub-total</b>		<b>150</b>	<b>30</b>	<b>180</b>

Skilled workers	Foreman	1	-	1
	Group chief	9	-	9
	Apontador/Logistic	1	-	1
	Human resource	1	-	1
<b>Total</b>		<b>162</b>	<b>30</b>	<b>192</b>



### **Calculation of people to do gravelling**

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Topography		3
Excavation	27m <sup>3</sup> /3.5m <sup>3</sup> man	8
Trailer loading	27m <sup>3</sup> /5.0m <sup>3</sup> -man	6
Preparing the lane		3
Unloading and spreading	27m <sup>3</sup> /5.5m <sup>3</sup> -man	5
Grass plantation		2
Watering		2
Compaction		9
Drums filling with water		2
Extras		5
Total to one team		45
Two teams morning and afternoon	2 x 45	90
Camp		3
Total - unskilled people		93
Group- chief		8
Mechanic		1
Logistic		1
Human resource		1
<b>TOTAL</b>		<b>104</b>

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## **7.2.4 Contractors in three levels**

### **7.2.4.1 Factors to consider**

- Finance for equipment procurement is not provided to contractors but instead, equipment is provided on hire or on lease.
- The reason behind this arrangement is that there is no security of funds recovery from new contractors in case of complete failure.
- Our prices/km guarantees reasonable profit to enable each contractor to buy equipment.

#### 7.2.4.2 Level 1

##### **First year**

- This level of contractor might have or might not have any or a little knowledge of road construction.
- He requires training and equipment.
- During his first year, such a contractor is provided with everything he requires: equipment, salary, tools, materials, training, etc.
- This contractor only receives a percentage of the works price like profit.

#### 7.2.4.3 Level 2

##### **Second year**

- After successful completion of first year, a level one contractor passes to level two.
- He now has knowledge of construction, people management, etc.
- He now has the right to receive the full amount of work done, paid by the Km prices .
- However, he still enjoys the privilege to receive various advances to pay salaries, tools, material and basic equipment. These advances are deducted upon submission of payment certificates.
- He can also hire equipment from World Vision.
- At this stage contractors start buying their own equipment as they realise good profit.

#### 7.2.4.4 Level 3

##### **Third year**

- At this stage, a contractor is now considered to be fully trained and can now take personal decisions in the day to day running of his company although he still needs some guidance.
- He can still hire equipment from World Vision although he is expected to have bought some equipment in the previous year.
- He can now get his work through tendering procedures and can now indicate his own calculated prices.
- He will now have only a right to receive 10% advance payment once he signs a contract document.



- The payment of the measurements of works, continues to be dependent on the presentation by the contractors of the payment sheets and governmental tax payments.

#### **Fourth year**

- The Contractor get his work through tendering procedures.
- The Contractor does not receive any advance payment once he signs a contract document..
- The Contractor must present the payment sheets and governmental tax payments, to receive their measurements, and payments.

#### **7.2.4.5 Advantages**

- The new contractor begins his life without debts.
- The contractor grows slowly but in a continuous and rather sure way.

#### **7.2.5 Conclusion**

The cost/km prices and the training of contractors in levels has up to now worked very well in Mozambique.



# **8 SUSTAINABILITY, GROWTH AND DIVERSIFICATION OF CONTRACTORS**



## 8.1 SUSTAINABILITY, GROWTH AND DIVERSIFICATION OF CONTRACTORS

*Gawie Burger, South Africa*

Chairperson, honourary guests, guests and friends.

I must congratulate the organisers of this seminar on the very relevant and applicable topics that were selected.

It is very unfortunate that one must compartmentalise these topics because of their dependency on one another.

I shall therefore for the time allowed to me, focus on sustainability, growth and diversification of contractors.

### 8.1.1 Introduction

The construction industry, which comprises both building and civil engineering sections performs an indispensable role in the economy of the world and more so in the economy of Africa.

The construction industry provides infrastructure which is fundamental to the ongoing development of a country and its activities affect everyone's lives in one way or the other.

In South Africa construction contributes about 35 % to gross domestic fixed investment (GDFI) and current projections of future infrastructure requirements indicate that its contribution to GDFI could double within 5 to 10 years. Government, as one of the biggest clients of the construction industry is in an ideal situation to create business opportunities for emerging contractors through their infrastructure development plan. A large and growing percentage of infrastructure development is taking place within disadvantaged and rural communities.

Governments must therefore play a major role in the creation of an enabling environment for emerging contractors to operate and grow in.

Some of the current obstacles governments are faced with is

- Lead time for releasing of Government funds for projects
- Lack of co-operation between government departments to ensure a constant flow of work.
- Government's limited capacity to manage its procurement functions.
- Sustainable economic growth and stability.



These are in addition other external or macro factors which the contractor has no influence or direct control over, but which he must be aware of.

### **8.1.2 Understanding of the Environment You Operate In**

Each successful business must understand the environment in which it operates.

This knowledge will help him to make sound business decision crucial to the sustainability and survival of the business.

Contracting businesses are different from other businesses in that

- They build or do specific work at their customers place.
- The place where they produce their products change from one contract to another. They do not have a fixed production location.
- They however need to have a fixed location for managing their business.
- They do not produce the same product over and over. They do similar type of work but each contract work is different and needs different materials and resources.
- They do not have a fixed customer base. A contractor may do repeat work for the same client but that may not be frequent.
- Contracting businesses have to constantly look for new clients and new work opportunities.
- The client does not make a decision on his own to provide you with work. The client appoints consultants to decide who should be given the work.

The above characteristics of contracting businesses pose challenges that are very different from those of another business.

Some of the challenges that contracting businesses are faced with are

- Because of the many uncertainties involved in obtaining work, contracting businesses have a higher degree of financial risk.
- Most contracting work is carried out in the open. Adverse weather conditions can affect the quality and timeliness completion of work.
- Due to the nature of the work communication and supervision is very difficult.
- To be able to face these challenges and be able to run his business well and cost effectively, knowledge of the specific line

of contracting business a person is in, is highly essential for the sustainability and success of the business.

This knowledge includes the following :

- Business management skills
- Core technical skills
- The ability to network with others.

A sustainable and successful contract entrepreneur is someone with :

- With continuous flow of work.
- Whose clients are fully satisfied with the quality and timeliness of his work.
- Whose suppliers are happy to do business with him.
- Whose people who work for him are satisfied and happy to work for him.
- Whose company has a good reputation in the area.

### **8.1.3 Expanding a Contracting Business**

Expanding a business involves, getting more work in the area it currently operates in. It involves increasing the income or turnover of the business successfully and profitably by initially staying within the areas of operation that the business is currently in.

For example if a person is a bricklaying contractor and he wishes to expand his business, he would try and get more work in the bricklaying field.

Expanding a business can open up many opportunities for the business as well as for individual.

There are however advantages and disadvantages in the growth of a business.

Firstly lets look at the advantages :

- The contractor can negotiate better deals with his suppliers.
- The banks will offer better packages and options.
- It will be easier to obtain credit.
- The business will have greater access to projects.
- The contractor will be able to sustain his workforce (employees) better because there is an even flow of work. The work force thus becomes more stable. This will allow the contractor to build up a really good team of workers which he can depend on. Development and training of workers can also be done which will ensure a high quality of work.



- The business becomes more valuable.

Expanding a business could, however, cause some of the following problems or disadvantages :

- The expenses for running the business could go up.
- The business is under constant pressure to get more contracts so that you can pay for the expenses.
- It becomes more difficult to sustain the cash flow.
- As the owner, the contractor must rely on others to do the work.
- There are more people who owe the business money and the potential for non payment becomes bigger.
- The business needs more financial support.

In expanding a business, the contractor or business man should try and balance the risks and the rewards.

#### **8.1.4 Finding Opportunities for Growth**

It is often not that difficult to identify potential work opportunities.

One must however be aware of where to look and to know how to access the information.

Some of the sources are as follows :

- Group membership
- Talking to the community structures within the area for example “stoep” syndicates, Mogodiso (stokvels), Burial Societies, Church, Community based organisations and community groups.
- Newspapers
- Newspapers are a valuable source of information on opportunities. Tenders are advertised in newspapers on a regular basis.
- Newspapers also tell contractors about opportunities that do not immediately seem obvious.
- For example, a headline may read : “Winds and heavy rain destroyed parts of a road.”
- At first glance a businessman may think what a disaster, on second thought, he could see this as a business opportunity : the road needs to be repaired.
- National Government
- Keep up to date with the Government Gazette. It provides information about all tenders put out by the national government.

- Provincial and Local Government
- Many provincial and local governments encourage up-and-coming contractors to get involved in their projects. A contractor should visit his local council offices and see what opportunities are waiting for him there.
- Other Contractors
- Contact the big contracting companies operating in the area. A small contractors involvement with them could give him access to some of their projects.
- Working with big established contractors also gives an emerging contractor the opportunity to study their methods of operation.
- General Marketing: It is important that a contractor develops and carries out his own marketing programme. He should make sure that he covers as wide an area as possible for the type of work that he does.

There are definite advantages to expanding a business. However, growth will only succeed if the business has a good basis from which to work. Like a tree that needs roots in order to grow, a business needs strong and deep roots in order to grow and expand. The roots hold the tree in place and feed on the water resources (remove space) in order to keep the tree alive. In the same way, a business needs a basis that keeps it in place and that feeds it. The basis of the business is access to the financial, physical and human resources needed to keep it alive.

## **8.1.5 Diversification / Expanding or Specialisation**

### **8.1.5.1 Specialisation**

Successful medium-sized contractors generally “stick to their knitting”. They work only on particular types of projects and do them very well. They become experts in their particular fields. Potential clients, who want that type of work to be done, often come looking for them because of their good reputations.

Contractors who work only on particular types of projects become very good at what they do. Because they do such work repeatedly, their speed and quality of work improves. They are therefore able to take on more similar projects. In this way they increase their turnover which leads to a growth in their businesses.

### **8.1.5.2 Diversification**

A business can increase its turnover and business opportunities by diversifying or expanding. However, this is not always very easy. There are many people who have tried to diversify into different areas, but who have failed to make a success of it.



Expanding a business involves getting work in areas that are new to the business.

It involves increasing the turnover of a business successfully and profitably by diversifying into other business areas.

For example if you want to expand a bricklaying business, the owner /manager could consider taking on projects that would include plastering, painting and carpentry work.

If a contractor wants to diversify he must consider the following points :

- Current competition in the market
- Is the market he wants to diversify into big enough to accommodate a new entry
- Does his organisation have the skills required to diversify into the selected market, if not how is he going to get the skills.
- The cost to diversify into the market.

Diversification can work if you are careful and you know what you are doing.

#### **8.1.5.3 Diversification through joint ventures**

Joint ventures are normally formed to carry out a single specific contract only. They are otherwise very similar to the formation of new companies.

A joint venture is formed when two or more businesses get together and decide it is to their benefit to bid on a contract together.

Here are a few reasons why a contractor might enter into joint ventures with other companies :

- A joint venture can help him make money on a project.
- He is able to get involved in projects which would not have been possible.
- This could provide an introduction to new management systems and ways of working.
- A lot can be learned from the joint venture partner.
- Through joint ventures a small contractor will be able to get a better understanding of the area into which he may want to diversify, without having to go through costly experiences himself.

#### **Case study 1**

S. Mouers started working for a Construction company on a National road maintenance project.

He attended a course in road patching and crack sealing and was the star performer on the course.

He then attended a Principals of Supervision course and became supervisor in charge of the patching team.

He then requested the main contractor to agree to him attending the Emerging Contractor Development Programme.

This course was conducted over weekends and S. Mouers attended all the sessions.

After the training he approached the main contractor and asked him if he could tender for future work. Until this stage he and his team were paid per day.

S. Mouers realised that the contract will be finished in a years time and he therefore needs to explore other market possibilities.

He approached the local authority and asked them if he could give them a price for the maintenance of the roads in the area that he lives.

He gave them background of his company and the current work he was busy with.

He was asked to submit a tender which he did. The tender was accepted.

From reading the newspapers and publications S. Mouers realised that the Government is putting a lot of emphasis on National road maintenance.

S. Mouers decided to expand his business but he also realised that he needs more employees and his current employees will have to be trained in the required skills.

He discussed his intention with the main contractor to see what his chances would be to tender for additional work if he complies to all the requirements.

The main contractor agreed that he would give S. Mouers on opportunity to tender on the additional work.

S. Mouers, his team and 3 new employees attended courses in maintenance of culverts, maintenance of concrete lined open drains and maintenance of culverts.

He realised that if he can perform all the activities related to road maintenance he could secure a market niche for himself.

He further multi skilled his workers to ensure that they can do more than one task.

S. Mouers current turnover is R25000.00 per month.

## **Case study 2**

Jimmy was a bricklaying sub-contractor for years.

The quality of his work was always very good and he always completed his work on time.



Jimmy then decided that he wants to take on a small low cost housing project.

The way he worked as a sub contractor was to give a labour only price. The main contractor calculated the cost of material, plant etc. and he was never exposed to it.

Jimmy tendered for the low cost housing project and won the tender.

He started work and initially it went well.

Due to rain and other delays he started to fall behind programme and decided to employ more sub contractors.

In the meantime he realised that he did not make provision for costs such as travelling, telephone, fuel, small plant etc.

After paying his workers and the sub contractors there was no money left to pay for the other costs.

Jimmy then decided to stop the contract with the sub contractors and use local unskilled people to perform the work.

He felt that what he saved, on the wages can be used to pay for the other costs.

Within the first week his production went down as well as the quality of his work.

He was asked to re do the work at his own expense.

By this time Jimmy was too deep into debt to carry on with the project.

### **Lesson**

Although Jimmy was an excellent bricklayer he has had no experience in business management skills.

He thought his technical skills would be sufficient to execute the contract.

### **Case study 3**

Moqidise completed his civil engineering diploma through the Cape Technicon.

He worked as a foreman and later as site agent at one of the civil construction companies in Cape Town for 5 years.

Moqidise, through reading the newsletters, tender bulletins, talking to people realised that there are opportunities for him to start his own business.

He realised that not many constructors are tendering for the smaller contracts. These are contracts between R200 000.00 and R900 000.00.

Moqidise approached the bank to see if they will be willing to lend him money to buy certain equipment and also for start up capital.



Moqidise had no assets at the time and his application was turned down by the bank.

He realised that the possibility of another bank granting him a loan will also be very slim because they go through the same procedure as the first bank.

He then approached his current employer and told them his intentions but that he could not find capital to start his business.

They agreed to form a relationship between the two companies until such time that Moqidise would be able to operate independently.

It was decided that his current employer would handle all his administrative work and he would also be able to use their plant and equipment at an agreed hourly rate.

Moqidise then formed his business, A.C.V. Civils, and started tendering on contracts in the R200 000.00 to R900 000.00 brackets.

Due to his experience in roads and site and service projects he decided that he would concentrate in these fields.

The first contract he won was the laying of a water mains for a local authority. The contract value was R650 000.00.

Moqidise realised that it vitally important for him and the reputation of his company to complete this contract successfully.

He carefully planned the resources he would require to complete this contract and also decided that he would be the site agent for the project.

Moqidise employed one pipelayer and 5 labourers to assist him with the execution of the contract.

He also decided that the people working for him must take full responsibility for the work they do, but also realised that you cannot expect people to take on responsibility if they do not know how to perform and what is expected from them.

Moqidise then sent the pipelayer for further training in pipelaying and also trained him to use a lazer. The labourers were also trained in their respective areas of responsibility to ensure that they operate as a team and that each team member clearly understand his / her roles.

Moqidise completed the contract before time and within budget.

He completed a further 5 similar projects. Moqidise then decided to take on more than one contract at a time. He however still concentrated in water, sewer and stormwater projects.

By this time Moqidise's business was well established and he decided to take on his own administrative people.

Moqidise realised that he had to expand his business into other fields to ensure that he is not reliant on contracts in one specific field.



Due to his experience in roads and road related projects he decided that it would be the area into which he is going to expand his business.

The first contract he took on was a Joint Venture with his previous company because he realised that it is a very machine intensive contract and he needed their machines.

They completed this contract also very successfully.

Moqidise is currently busy with one road maintenance contract and two laying of water mains contracts to the value of R9.6 million.

He currently employs 2 administrative staff, one site agent, three foreman and 32 labourers.

His assets consist of:

- 2 Bakkies
- 2 Plate compactors
- 2 Bomag rollers
- 2 Lasers (for pipelaying)
- 1 Truck
- 1 Excavator
- Small tools

### **8.1.6 Conclusion**

The building industry has a poor image in the eyes of the general public. Many contracting firms come and go especially emerging contractors.

They leave behind them a string of dissatisfied client's who remain with this terrible image (impression) of the industry.

This is one of the industries that have very low barrier of entry.

If a contractor wishes to remain in this industry, he will have to fight against this general impression. He can only do this by setting standards that show his company is committed to deliver an excellent service.

The benefits that a company can gain through good customer service are as follows :

- |                   |  |
|-------------------|--|
| Customer loyalty: | Experience has shown that satisfied customers are more loyal. They are more likely to negotiate additional work with the same company. |
| Less wasted time: | If a contractor gets to know his customers needs and wants better, he will spend less time trying to work out what they want.          |



Saving money,

adding to his profits: Unnecessary work, which arises from poor workmanship and poor customer service can be saved.

Obtaining more work: Happy customers will refer a good contractors business to other people who in turn might request him to do work for them.

Some of the costs that a company could have due to poor customer service are :

- cost arising from handling complaints
- cost of re-doing work
- cost of paying penalties
- cost of legal action with customers
- cost of wasted time

Ensuring the survival of a business is a responsibility the owner owes to his business.

Being in business means a commitment to those whose lives and livelihood depends on the performance of the company.

The only route for a business to survive and grow is through customer satisfaction.

There are seven steps to follow to make good customer service happen in a company. A contractor should:

- Step 1 - Keep loyal staff
- Step 2 - Know his customers well
- Step 3 - Keep loyal customers
- Step 4 - Price correctly
- Step 5 - Communicate with his customers
- Step 6 - Train and upgrade himself and his staff constantly
- Step 7 - Hold it all together

*Please note that although the paper is written in the masculine it applies equally to both women and men.*

## 8.2 A CASE STUDY OF LABOR-BASED CONTRACTOR TRAINING IN EGYPT

*Hany Attalla, The Egyptian Social Fund For Development, The Public Works Program*

The Economic Reforms and Structural Adjustment Program (ERSAP) adopted by the Egyptian government and sponsored by the World Bank, in the early nineties, necessitated the establishment of a social safety net to mitigate the effects of its implementation. The Social Fund for Development (SFD) with its five diverse programs: (i) The Small Enterprise Development Organization, (ii) The Community Development Program, (iii) The Public Works Program, (iv) The Human Resources Development Program and (v) The Institutional Development Program, functions as one.

The SFD was established by a presidential decree in 1990, it started its actual operation, however, by late 1992. It enjoyed the contribution of eighteen different donors committing a total of US\$737 million during its First Phase 1992-1996. During that period SFD functioned primarily, according to its mandate, as a safety net. After its successful accomplishments during its First Phase, the SFD was extended for a Second Phase 1997-2000 with a contribution of US\$692 million from fourteen donors. About half of all funds committed during Phases I and II are grants and the other half are loans. During its Second Phase the SFD shifted its role from a safety net to more of a local development institution responsible for the well being of the Egyptian rural poor and unemployed.

The Public Works Program (PWP), as one of SFD's core programs, aims at generating employment opportunities for the increasing numbers of Egyptian youths by investing in labor based public works projects. Thus creating, on the one hand, temporary jobs for skilled and unskilled labor during implementation and, on the other hand, long term employment through operation and maintenance activities. The by-product of such capital investments, which are all funded through grants, is the improvement of basic services in rural areas and low-income urban sectors where deprived and vulnerable target groups are concentrated.

The SFD's mandate shift, required its programs, including PWP, to capitalize on its service delivery system rather than its role as the primary financier of infrastructure projects in rural Egypt. The aim of the PWP, during SFD's Second Phase, has been to institutionalize its services and make them more sustainable and responsive to the needs of the communities it serves.

In an attempt to recognize the labor-based concept as the infrastructure project implementation method of choice, PWP sought funds from The Danish International Development

Assistance (Danida) to train local youths to be labor-based contractors. This is envisioned by relying on the ripple effect of those contractors spreading the word, after their graduation, and adopting the concept in implementing other infrastructure projects, perhaps funded by other sources. Also by replicating the training module several times to cover all geographical areas within Egypt, and perhaps in the Middle East region and African continent to help introduce the concept to countries suffering from unemployment and poverty.

The following is a brief account of the labor based contractor training in Egypt:

### **8.2.1 Introduction**

Since the PWP is aiming at institutionalizing the concept of labor based construction in rural Egypt, it agreed with Danida to commit funds to launch a nation-wide program to train small contractors to implement and maintain public works projects using labor based methods. Utilizing Danida's funds in co-operation with a Danish technical assistance Consulting Team, the PWP commissioned the services of a local Training Firm to train 150 candidates in nineteen governorates, geographically divided to serve all regions, to become labor based contractors. The training module is divided into three batches, using theoretical and practical methods, during a two-year time frame, each batch for a term of ten months. When completed, small labor based contractors will be available in rural Egypt to efficiently maintain and implement social infrastructure projects, and to also employ and train other workers on the utilization of labor based methods. In addition to the small contractors, selected local public officials, along with local Civil Society Organization (CSO) leaders are also being trained. To help indoctrinate this concept even more, the PWP is also training 30 established contractors to enhance their capabilities in utilizing labor based methods and to forge an apprenticeship with the small scale contractors.

### **8.2.2 Consulting Team**

In co-operation with the SFD, Danida is funding several projects with the Community Development Program and the PWP including the contractor training module. Since 1998 Danida commissioned the services of a Danish consulting firm to supervise its SFD-funded projects, and provide the necessary technical assistance. The PWP selected a labor based technical consultant to be on the consultants' team, in order to draw on his experience and background during the formulation, design and implementation of the project. The PWP also insisted on including a qualified local engineer as a member of the team, to work closely with the expatriate consultant to transfer the technology and know-how of labor-based means and methods. Both individuals have since formed a Technical Assistance for the SFD (TASFD) that is instrumental to the success of the project. They both work in synchronicity, where the expatriate member



provides the knowledge and the local member offers the necessary adaptation and cultural emphasis. The both manage the day to day progress of the project under the guidance and supervision of the PWP management.

### **8.2.3 Training Firm and Sustainability**

The PWP is considered the lead local institution that pioneered the concept of labor based construction in Egypt. It has done this initially through the enforcement of its guidelines and subsequently through beneficiaries believing in the benefits reaped by such enforcement. Because the PWP has the intention to institutionalize the labor based concept within Egypt and the region, it strives to replicate its experience by creating and supporting local expertise in that field. This is why it opted for commissioning the services of labor based contractor training to a local Training Firm. Albeit that local firms might not have the sufficient technical expertise and know-how to carry out a training of that magnitude as desired, the PWP took the decision to do so in order to indoctrinate the labor based concept within its local parameters. The local Training Firm along with PWP often commission the expertise of international labor based consultants, on an as needed basis, to work on the project for short term consultancies in order to provide objective criticism to its direction and buttress the experience of the local Training Firm. A workshop was recently held under the supervision of one of those consultants to group all the project's stakeholders in a two day session. This was scheduled at the final stage of training and prior to the start of the trial contracts of Batch I. The goal was to assess the accomplishments so far and the direction adopted to attain such accomplishments, furthermore, the reformulation of the training immediate objectives based on what has been accomplished so far. This workshop also helped in redefining the developmental objective of the project. Similar interventions are planned to take place during the course of the project to continuously realign its position. By the end of the project, the PWP expects to have graduated 150 contractors well versed in the field of labor based construction. It also hopes to have a local institution that is ready to replicate the training with other candidates on a sustainable basis.

### **8.2.4 Number of Trainees**

According to the funds available from Danida the PWP decided to train 150 candidates to be small labor based contractors in addition to 30 established contractors. The small contractors were selected randomly, based on predetermined criteria and the results of written tests and oral interviews, from candidates who applied for the program, some are university graduates others are graduates of technical schools. The established contractors are ones that have been previously awarded PWP funded projects and performed them satisfactorily. The 150 small contractors were divided into three batches to be trained over a 24-month period, each batch is of a duration of ten months each. The three batches serve three

geographical areas, the first has one venue and serves two governorates, the second hosts two venues and serves eight governorates while the third will work with three venues to serve nine governorates. The fact that the training is divided into three batches allows the opportunity to take corrective actions during the course of its delivery. Two additional reasons dictated this number: (i) the coverage. The project aims at training sample candidates in 19 governorates all over Egypt, and; (ii) the variety. The project intends to train candidates in the types of infrastructure projects that the PWP implements.

### **8.2.5 Types of Training**

The PWP is funding the implementation of several types of social infrastructure projects. During each ten months' training module, trainees will first be exposed to the theoretical aspects of labor based construction followed by the practical ones. Each batch will go through both parts on a general basis; then subgroups will be formed to cater to the various infrastructure types. Based on their particular interest, candidates will form subgroups that are then trained on a particular type of infrastructure: potable water, wastewater, the environment and roads. This organization of the training module avails opportunities for the trainees to specialize in the type of infrastructure labor based construction that they prefer, and which is prevalent in their respective geographical area, in addition to having the overall theoretical and practical aspects of labor based construction in general. This scope covers all of the necessary technical aspects of the training. Other aspects such as administrative, financial, managerial and entrepreneurial are also covered in each training module. The core basis of the theoretical syllabus are the IYCB (Improve Your Construction Business) books of the ILO that have been completely translated into Arabic.

### **8.2.6 Established Contractors**

In order not to miss on the opportunity of training all contractors currently implementing PWP projects, the PWP chose to include a selected group of established contractors to be taught the same syllabus, but under different conditions. A group of 30 contractors chosen from the 19 selected governorates, are attending similar condensed sessions tailored to their needs, which include encapsulated dose of what is being taught to the small contractors group. This is done to bring established contractors up to par with the newly trained candidates and to cross the gap between the knowledge of both parties. Such condensed sessions are also attended by selected small contractors to benefit from the established contractors' questions and insights. After attending the introductory part of their training, the projects of the established contractors act as venues for the practical on site training of the small contractors. This method creates a partnership of apprenticeship between the established contractors and the new ones. Furthermore, prior to their graduation, the small contractors

are allowed to bid on a project under the guidance and supervision of one of the established contractors.

### **8.2.7 Module Design**

It has been clear that the adaptive design of the training module lends itself to its progressive structure. To emphasize the mixture between theoretical and practical aspects and the variety of technical specialization, candidates attend improvised on-site classrooms to reinforce the theoretical/practical aspects of their training. This allows them to learn in the field and practice simultaneously what they are being taught. Trainees are also given the opportunity to be coached to bid for an actual job, under the apprenticeship of one of the established contractors, within their respective line of interest. During this trial contract, mistakes are picked up and corrected under the supervision of the local Training Firm and the designated established contractor. This allows a hands-on experience for the trainees that is, in most instances, their first encounter with the world of contracting. Furthermore, prior to their graduation, trainees are allowed the opportunity to bid for another job in an open bidding process - also for PWP-funded projects - to practice what they have learned and the mistakes they have previously made and corrected. Profits are expected to be made by each trainee on these latter contracts. Trainees may obviously keep their earned profits to help them bid, on their own, on future jobs.

The PWP is currently negotiating plans to help register the successful graduates in the National Contractors' Union and hopefully assign them as subcontractors to some of the large local contracting firms, thus, paving the road to their future success as entrepreneurs specialized in the labor based construction field.

As previously mentioned, PWP adopted the contractor training idea in order to help institutionalize the labor based concept in Egypt and hopefully in the region. It is apparent that such a decision was taken in favour of a sustainable developmental effort to combat poverty and unemployment. PWP sees that training is the proper vehicle to set a solid basis for a labor based culture and simultaneously building up local capacity to support it. It also sees the diversification of its training in various infrastructure project types, to match its fields of funding, as a distinctive criterion that singles this project out as a unique effort to indoctrinate the labor based concept. PWP wishes, after the proven success of its contractor training efforts, and its efforts in adapting and authoring original material in that field, to act as a beacon in the region for further and similar training that aim to serve the same developmental objectives.



# **9 THE ROLE OF THE CLIENT, CONTRACTOR AND CONSULTANT ASSOCIATIONS**



## 9.1 THE ROLE OF THE CLIENT, CONTRACTOR AND CONSULTANT ASSOCIATIONS ON THE LABOUR BASED ROAD PROGRAMMES IN ZAMBIA — 'WHERE DO WE GO FROM HERE'?

*Henry M Musonda REng MEIZ MconsEZ, Projects Director, Kiran & Musonda Associates Ltd, Zambia*

'FTJ Goes Bumping,' 'Potholes irk FTJ,' **Chiluba Fumes,**' read the headlines of the leading national dairies of Friday 21 February, 1997.

In its editorial, the Times of Zambia asked, '**where are the people trained and paid to carry out such tasks?** The Daily Mail's editorial comment stated; '**we need to know who are registered contractors for a start'. We need to know who inspects and certifies that the roads done by a contractor meet the required standard'**. The post was forthright; 'Those responsible for the programmes are no mystery they are known'.

The post concluded by stating that corruption is bad and must be dealt with, but first of all the roads must be attended to and the plan for that should now be announced.

This response is not meant to provide the plan to immediately address the road repairs but as a Registered Engineer, a member of the Engineers Registration Board, a consultant and more importantly a concerned citizen I feel duty bound to participate in the Roads Debate.

Professional Conduct and Ethics for engineers is, of course, only part of the whole spectrum of engineering practice. In discussing the subject 'where do we go from here' I can only do so by touching on the place of professional Conduct and Ethics or PCE, in the context of engineering practice as a whole and in particular road repairs in particular and indeed on the place of the **road practitioner** in society.

To have taken on the subject implied on assumed prescience on my part, so to begin, let me disabuse you of any great expectations and merely remind you that 'He who seeks wisdom's core is doomed to seek for ever more'.

There are no easy answers but there are some very distinct pointers, which we ignore at our peril.



I would like to define 'Professional Conduct and Ethics' as follows:  
**Earning a living by practising a particular skill with very good standards of behaviour.**

When our politicians or economists or the media talk about 'investment', they simply mean money. They use slogans such as 'lack of investment' as indicating short sightedness in not directing financial resources into new plants and machinery or new enterprises, workshops, buildings, roads and so on. While it may be true that investment in monetary terms has been less than adequate, and while our economists tend to ignore the benefits of long term investment anyway, real investment means **selecting, training, education, re-training and re-educating the people** who create the wealth of the country.

Nothing less than a revolution is needed in our general outlook on professional conduct and ethics as a whole in order to reap full advantage from the new investment in the road sector in our country.

This is the backdrop against which we have to look at the future of engineering practice on Labour-based road programmes with regard to professional service.

I personally believe there is hope.

There are two general principles of looking at professionalism or at the work you do to earn a living.

- a) One is to make your work interesting and rewarding. But there are also two ways of looking at the pursuit of happiness. One is to go straight for things you fancy without restraints, that is without considering anybody else besides yourself. The other is to recognise that no man is an island, that our lives are mixed up with those of our fellow human beings, and that there can be no real happiness in isolation.

We must therefore strive for quality in what we do, and never be satisfied with second rate. We must be lead to seek overall quality, fitness for purpose, as well as satisfying significant forms and economy of construction.

- b) The other general principal is the humanitarian attitude. The humanitarian attitude dictates that we should act honourable in our dealings with our own and other people. We should justify the trust of our clients by giving their interest first priority in the work we do for them. Internally we should avoid nepotism colour or sex, basing such discrimination as there must be an ability and character.

Humanitarianism also implies a social conscience, a wish to do socially useful work and join hands with others fighting for the same values.

We cannot live life entirely without principles. But they have in some way to be flexible to be adaptable to changing circumstances. What professional conduct should define is an attitude. To be truthful always, wherever it does no harm to other ideals more important in the context, to respect of human life and not to destroy life wantonly. But where to draw the line in border cases depends on who you are, what life has taught you and how strong you are.

In the following points on the topic of professional conduct and ethics, I am grappling with this question; perhaps not very successfully. I give them to you now.

### **9.1.1 Principles**

- Some people have moral principles
- The essence of moral principles is that they should be 'lived'
- But only saints and fanatics follow moral principles always.
- Which is fortunate
- Are then moral principles no good?
- It appears we can't do without them
- It also appears we can't live up to them
- So what?
- A practical solution is what I call the ideal system
- The ideal system indicates the course. You sail round obstacles but one gets back on course after the deviation.
- The system is adopted by the Catholic Church. Sins can be forgiven if repented.
- But this system can obviously degenerate into permanent deviation
- One needs a sense of proportion.

Incidentally, this should not be taken as an encouragement to join the Catholic Church.

#### **9.1.1.1 Client institutions (Labour-based road programmes)**

- The National Roads Board
- Ministry of Works and Supply (Road Department)
- Ministry of Local Government & Housing
- City/District/Rural Councils
- Ministry of Agriculture, Food and Fisheries
- Donor Agencies EU/EEOA etc
- PUSH



- Other (State House, etc)

Client Institutions are not organised, no one speaks for them, and you can easily see the difficulties of achieving such an obligation if indeed it would be useful. And the user perhaps the most important people are not necessarily the clients (But this is being addressed on some donor funded projects).

In Zambia, the Government is thus the major client and spokes person on road matters.

#### **9.1.1.2 Contractor associations**

- National Council for Construction Contractors/Consultants/GRZ etc.
- Association of Building and Civil Engineering Contractors
- Others

#### **9.1.1.3 Consultant associations**

- Association of Consulting Engineers of Zambia (ACEZ) which exists under the EIZ 1992 Act.
- The Engineering Institution of Zambia (EIZ) umbrella body for General Engineering.
- The Engineers' Registration Board (ERB).

### **9.1.2 The Need for Urgent Action**

#### **9.1.2.1 Lack of accountability**

- Road safety - deterioration of the road network.
- Force Accounts etc.

#### **9.1.2.2 Lack of community participation**

Ultimately it is only people that matter; everything else flows from that. And here government can help. Politicians are listened to if not respected a little bit more if they emphasised some of these basic issues on roads and then lived up to doing something about them (not by setting up personal road construction companies).

Government must lead the way in developing a national vision and reverse the decay of the nation in relation the expectations and quality of facilities

#### **9.1.2.3 Poor training and standards**

- There is urgent need for a fresh look at the education standards and facilities in the country.

- Contractor/Consultant Associations must insist on representation on the Curriculum Development Committee, University and Technical Institutions, School Boards etc.
- Competence, integrity and advise is the minimum demanded of contractors and Consultant Associations

#### **9.1.2.4 Fostering the entrepreneurial spirit**

So, What view should we take of skills transfer in the case of an area or region that has received new roads? I believe that we cannot meet the demands of the times by educating and training “mere engineers”. Rather, we should be trying to develop large numbers of skilled entrepreneurs who want to become managers with a grasp of road engineering.

For this reason, assistance to the areas and regions that have entered this new phase of development (new roads) should consist not merely of technical training but rather of education programs designed to foster the entrepreneurial spirit in conduction with training in road management technologies. The key to the creation and expansion of our country’s road technology base is of course a burning desire to improve on the part of its entrepreneurs. It seems to me that we have now reached the stage at which, rather than trying to educate and train elite engineers in the country, we should be concentrating on developing large numbers of people who want to establish their own businesses and are prepared to take the road technology they acquire and raise its level through their own efforts and ingenuity, rather than on educating and training “mere engineers”.

#### **9.1.2.5 The need to support new-business start-ups**

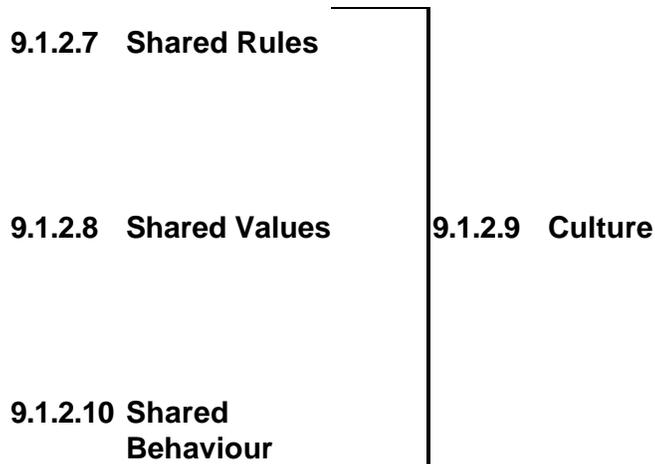
In the past, one of the point mentioned in the debate about this subject (Labour-based contractors) was that, when given technical training, people also needed to be provided with appropriate work opportunities to practice their skills, or else they would gradually forget the skill they had mastered. In reality, however, there was never enough suitable work. Since the beginning of the 1990’s, though, sufficient appropriate work is clearly being generated in many of the areas in the country and as a result of the implementation of the internationally renowned ROADSIP PROGRAMME.

The success of the labour-based road rehabilitation programme will be led by individuals and small scale contractors fuelled by a keen entrepreneurial spirit trying their hardest to raise their technical standards and make a success of their businesses. We are at the point when the kind of technology transfer and road construction and manager training that takes account of these requirements are needed, together with support provided at the point when new businesses are started up. The EEOA’s programmes in the Eastern and Northern provinces deserve recognition.



### **9.1.2.6 Culture**

Government can help create a climate for gradual cultural change, for that is what is needed.



In our case – No shared rules and no one is prepared to enforce them.

The severe threat posed to urban life by the accelerating uncontrolled growth of shanties, street vending, UTTA MAFIA, deteriorating water and sanitation services, poor national wide transport networks etc. Is a clear lack of shared rules.

If this change of emphasis in our culture means that we must fundamentally reappraise our training and educational establishments and this has financial implications; we simply cannot afford not to invest in some money.

#### 9.1.2.11 Continuous improvement

In this country we start so many things which we do not finish or complete or if we do we never continue to maintain them. e.g. the newly constructed Lusaka/Kafue and Lusaka/Kabwe roads etc. Potholes have started developing and there's no maintenance yet till the roads completely breakdown?

- Road improvements lead to people to get used to the facility. Failure to maintain the facility is even more depressing (Livingstone/Sesheke Road).

### 9.1.3 Conclusion

To sum up then in response to the question 'where do we go from here?' the answer is **nowhere** - unless we get our act together. I have course, been deliberately provocative and neglected to mention the many centres of excellence which exist, the many men and women who keep and maintain the roads under very difficult conditions and the current road rehabilitation programme which has received international recognition (otherwise we wouldn't be here).

But what I am talking about is the aggregate, the trends, and the overview - the comparison with other countries.



To assist and ultimately to reverse these trends, I believe that there is a role for the community, the government, the company or the corporate body for whom we work, and for each of us individually.

The government's long-term role is probably ultimately the most important, in that by word and deed it can bring about a cultural change. And for road repairs, at least, Government must be truthful and honest in its contractual obligations. Government must meet its financial obligations on road projects and stop blaming contractors and consultants for all roads related problems.

Individuals representing the Government, Contractors and Consultants must conduct their business dealings professionally with good ethics. The success of countries, which have done this, bears witness to the results which can be achieved by visibly investing in establishing moral standards for politicians and the community.

Finally, it is up to the individual and to each of us, not only to play our role in our country's and our company's affairs and hence to make our voice heard, but also essential for each and every one of us to be self motivated, to set ourselves goals, targets of achievement, improving our professional efficiency and conduct not only for our own good, but also to set an example to others.

By being seen to be good and useful to society we will perhaps inspire others, particularly the young, to do something creative and swell our ranks.

#### **9.1.4 Acknowledgements**

Sections of the paper are based on earlier work by Sir Ove Arup, 1988.



# **10 URBAN UPGRADING AND COMMUNITY CONTRACTING**



# 10.1 INFRASTRUCTURE PROCUREMENT STRATEGIES TO BENEFIT THE URBAN POOR

*Dr M Sohail Khan, WEDC, Loughborough University, and Ir Wilma van Esch, ILO-ASIST, Nairobi*

## 10.1.1 Introduction

The objective of the presentation is to introduce participants to community-based infrastructure procurement strategies for low-income urban communities.

The presentation provides an overview of the investigation and analysis of the mechanisms, both conventional and unconventional, government and non-government, which have been adopted in efforts to deliver improved services to the urban poor. These mechanisms are the agreements, procedures, and contracts whereby things actually get done. Such mechanisms also include community-partnered procurement (CPP), a part of which is community contracts.

Cases from Asia and Africa have shown how community groups have taken a wide range of roles, which can be compared to those of clients, contractors and supervisors in the formal sector. Discussions will focus on how to assimilate and institutionalise good practices.

## 10.1.2 Partnering With The Community — A Procurement Strategy

Procurement is the process of buying goods, works or services. In our case these are related to the infrastructure and services in poor urban areas.

Procurement strategies could be classified into two generic categories:

- In which the community is not involved, and
- In which community gets involved.

The 'community' in infrastructure provision normally consists of people directly benefiting from the infrastructure. Therefore geographic boundaries are used to define the community.

Communities can be involved in procurement in various ways. For example, communities can represent the client and be involved in the planning, design and tendering procedures. Communities can also act as a contractor and actually implement the works under a contract with the client. In community-partnered procurement the community is one of the partners in the procurement process. This



can be seen as a way of achieving real participation of beneficiaries in the process.

There are various reasons for involving the community in procurement. In Tanzania and Uganda, for example, reasons for carrying out the work under community contracts are:

- Strong involvement of the community is necessary to avoid conflicts and demands for compensation
- To create employment opportunities for the un- or under-employed in the settlement
- To improve skills and capacity of local people to address services and maintenance requirements
- Weak local private sector contractors
- The community contractor not only benefited from the contract but also from the assets created. Shirking of the contract is less common
- To formalise relations (participation) between the government (city council) and the community.

In Asia, for example in Pakistan, India and Sri Lanka, the reasons for involving the community are:

- Lack of municipal capacity to meet demands on their own due to massive urbanisation
- Political pressure both from national and international organisations
- Generation and support to employment creation, improvement in income, and small enterprise development
- The assumption that if the community is involved the municipal authorities will have to spend less resources on operation and maintenance of assets created.

### **10.1.3 What is Community Partnering?**

It is proposed to use the term Community Partnering as a concept to embrace this variety of roles and responsibilities of the actors involved in improving the infrastructure and services in an area. In its broadest sense, it reflects the continued involvement of the people, who are demanding and benefiting from the infrastructure, with the planning, implementation and sustenance of local infrastructure and service improvements, and with income generation, enterprise development and skills training.

Partnering implies non-adversarial (where partners complement each other to achieve a common goal) and equitable power relationships between the parties and is a way of defining the participation of the beneficiaries in the process.

The underlying implications are:

- Full acceptance of the urban poor as primary stakeholders in local infrastructure provision
- The development of longer term more open-ended relationships, encompassing joint financing, planning, design, implementation, handing over, and maintenance
- Promoting co-operation both formally and informally with government agencies and NGOs
- Full acceptance of the need to promote the local construction industry and small enterprises.

Communities should not be forced to enter into a partnering relationship. That would be against the spirit of partnering. The relationship should be on equal terms and on a voluntary basis.

Experiences indicate that, contrary to the views of a number of professionals, urban infrastructure at the local (tertiary) level is not 'too complicated' for ordinary people to get to grips with. Urban infrastructure is complex, but community groups in different situations demonstrate their ability to play a positive role. The key point to emerge is that there is no single identifiable role model for participation in urban infrastructure provision.

#### **10.1.4 Options for Conventional Procurement Procedures**

What follows are some of the options that are generally used in public works departments:

- Force Account Departmental Works in which work may be executed directly by the Engineering Department through employing daily skilled and unskilled labour. A muster roll of the labourers has to be maintained. The materials required are issued from the government store by indent or purchase directly chargeable to an authorised agent.
- Piece Work Agreements and Work Orders are strictly 'contract types'; they are included here as they can be used for very small works, up to about Rupees 2000-3000. They can be undertaken at the discretion of the Engineer and do not have to be submitted to such lengthy procedures as larger contracts.
- Entrustment of Works by Negotiation; registered voluntary organisations or co-operatives engaged in 'social service' or 'local improvement efforts', or one or more 'beneficiaries of works' may be entrusted to carry out the works. The Engineering Department negotiates rates.
- Co-operative Societies can be formed for the purpose of undertaking minor works. These exist in India; examples are 'unemployed engineers' and 'labour' co-operatives. In some cases the Engineering Department is empowered to award a certain quota of work at a discount which can be as much as 10% of the tender price.

- **Labour Contracts:** the Engineering Department arranges for construction materials to be available at the site; the labour contractor hires the necessary labour and undertakes to carry out the work. Payment is based on the measured quantity of work carried out.
- **Micro Contracts:** contracts that are very small in cost and duration are grouped under the term micro contracts. The most commonly used method for micro contracts is for tenders to be submitted on a 'percentage plus' basis. That is, rather than fill in his/her own rate for each item of work, the contractor takes the Engineer's Estimate as per the government schedule of rates and adds on a percentage of the total. This percentage has to include his/her profit, but more importantly it must allow for the difference between the schedule of rates and the actual market rates for materials and labour.

In all the above options the contractor needs to have a legal status to be able to tender for works and to open a bank account. In the conventional procurement procedures, whereby the work is normally not entrusted to the community, this contractor needs to be registered as a contractor. In community-partnered procurement the community or an economic group within the community can operate as a contractor without being actually registered as a contractor. However, in case of community contractors there is also a need for registration and a clear legal status for the community contractor.

### 10.1.5 Micro Contracts

Urban infrastructure facilities that relate to services such as water and sanitation, access, street lighting and solid waste management in urban areas at neighbourhood level are frequently procured through micro contracts. This is due to contract packaging, a more frequent demand for small jobs, and local capacity to handle the contracts. Micro contracts are contracts that are less than approximately £10,000 and less than one year in duration.

It depends on the procedural framework adopted if tendering is necessary under micro contracts. In any case, for public sector organisation, some sort of apparently transparent mechanism is used to demonstrate that the decision that is taken is the most advantageous.

To monitor the contracts, consideration of the following triangle of objectives is important:

**Cost:** has the work been completed within the costs agreed in the contract?

**Quality:** has the work been done in accordance with what was specified?

**Time:** has the work been satisfactorily completed within the time specified?

### **10.1.6 Roles of Contract Partners Under Community Procurement**

In each contracting situation there will be a client who requires the work to be carried out and pays for the work, and a contractor who implements the work. In most cases consulting engineers will assist the client in preparing the design and the contract documents, evaluate the tenders, and supervise the work of the contractor.

In community-partnered procurement the beneficiaries of the infrastructure or services to be provided play an important role. Communities can benefit from the works in various ways:

- Through the created assets or improved services (as in conventional procurement procedures). To ensure that the created assets or services meet the demand of the community the community needs to be closely related to the client, or be the client.
- As workers on the site. The choice of technology used should benefit many workers by taking advantage of the high labour input. In a beneficiary setting the workers will be able to work under proper working conditions and to be trained.
- As contractors. Representatives of the community can act as contractor, and the profit will go to the community bank account to finance other interventions or maintenance of the created assets. It is also possible to contract out the work to economic groups within the community, thereby promoting local private sector capacity.
- As partner in the entire process the community builds upon its capacity to take more initiatives to improve its own living and working conditions. Partnerships between the community and the other partners (government and private sector) could facilitate further understanding and co-operation.

### **10.1.7 Kind of Works Potentially Suitable For Community Partnered Procurement.**

Broadly speaking there are two categories of questions that need to be considered before a decision is taken to involve the community in the implementation of the work:

1. What kind of work is suitable for community involvement?
2. What role or combinations of roles are appropriate for community groups?

It is noteworthy that in reaching a decision regarding the roles and the kinds of work that a community can undertake, the community



should be given the chance to participate in the decision-making process.

Based upon experience, certain guidelines can be deduced regarding the kind of work where the community could be involved. The kind of work suitable for community partnering should:

- Not be of high risk or hazard
- Not be technically or managerially complex
- Not be very mechanised
- Not be capital intensive
- Be of routine nature, where know-how is available or can be relatively easily accessioned.
- Not require special skills or equipment that takes a long time to acquire.

Some examples include (but are not restricted to):

- excavation for water and sewerage lines
- laying of pipes, jointing of pipes
- construction of small and medium size manholes
- cleaning of manholes, minor repairs, maintenance routine checks
- operation of small infrastructure facilities
- collection of domestic refuse, street cleaning
- general labour based works
- plastering, masonry works, small buildings
- small access pavements.

Some of the above activities are of recurrent nature.

The resources needed could be classified into:

- Skilled labourers
- Unskilled labourers
- Standard artisan tools and special tools
- Materials
- Equipment.

### **10.1.8 Performance Indicators**

It is important to keep track of whether the contract is meeting the objective. One way is to develop indicators. A detailed account of performance monitoring indicators for urban infrastructure procurement will be available from Dr Khan in the near future.

A performance indicator can be defined as an item of information collected at regular intervals to track the performance of a system. Performance indicators are important in monitoring and evaluation. For this presentation the information is related to micro-contracts used in the procurement of urban infrastructure.

#### 10.1.8.1 Operational definitions of some performance indicators

Performance indicators have been defined as dimensionless ratios to enable data, related to micro-contracts, to be compared more easily. The use of ratios makes it possible to compare the cost related data without normalisation, as comparison is not between the costs themselves but between the ratios.

**R1 Cost Growth** The ratio of final contract cost to the initial contract cost. This ratio will reflect the effectiveness of cost controls and changes in the scope of works in the project.

**R2 Time Growth** The ratio of the final contract duration to the initial contract duration at the time of award. This reflects the extent to which the time schedule was controlled and the amount of risk encountered.

**R3 Ratio of the time taken from establishment of necessity (approval) to the commencement of contract, to the duration of the contract.** This reflects time taken in the pre-contract stages as a proportion of the actual contract duration. The lead-time is important in the overall delivery of the infrastructure improvement.

**R4 Ratio of the estimated cost to the contract cost** This ratio compares the estimate to the tender price. A government-approved schedule of rates forms the basis of the Engineer's Estimates. So this indicator also reflects any disparity between the government rates and the prevailing market rates. This indicator is particularly useful for public sector procurement.

**R5 Ratio of the estimated cost to the actual completion cost** This ratio reflects the accuracy of the estimates compared to the actual completion cost. This complements the idea of 'cost growth'.

The indicators can also be used as benchmarks within the class of micro-contracts and may help in improving performance. For example, one local authority or community could learn from a better performing organisation. Tables 1 and 2 are presented as an example. The data belongs to Dr Khan and should not be used without consent. The data was collected up to 1997.

**Table1: Some selected statistics related to contract cost and duration in different contexts**

<i>Contract contexts</i>	<i>Country</i>	<i>Number of Contracts</i>	<i>Mean Local Currencies</i>	<i>Equivalent UK Pounds</i>	<i>Mean Calendar days</i>
<b>10.1.8.1.1 Community participated</b>					
OPP (Pk.Rupees)	Pakistan	32	8,308	119	NS
SIP community contracts (Ind.Rupees)	India	7	48,500	746	39
CSPU contracts (Sr.Rupees)	Sri Lanka	4	390,669	4883	62
SKAA Departmental works (Pk.Rupees)	Pakistan	10	250,790	3583	NS
NHDA Community contracts (Sr.Rupees)	Sri Lanka	42	347,794	4347	77

NS The value is not specified. For conversion: £1 = 80 Sri Lankan Rupees, = 65 Indian Rupees, = 70 Pakistani Rupees

It can be seen that in countries where community contracting is just starting, the contracts are relatively small in cost and duration. In organisations where the practice of community contracting has been going on for some time, the cost and duration have increased.

**Table 2: Performance indicators of different contracts**

<i>Contract contexts</i>	<i>Indicators (Means)</i>	
	R1	R2
<b>Community participated</b>		
OPP	1.08	N.C
SIP community contracts	0.97	2.06
CSPU contracts	0.97	1.37
SKAA Departmental works	0.67	N.C
NHDA Community contracts	0.88	1.89

R1 is the cost-growth ratio. R2 is the time-growth ratio. NC not calculated

While the cost performance is satisfactory, the time performance needs improvements. However, these community contracts are comparable with conventional contracts, if not better. Under all community contracts the quality was reported to be better than under conventional contracts.

### **10.1.9 Summing Up**

Partnering with the community is an appropriate and socially sensitive procurement strategy for the procurement of tertiary infrastructure for low-income urban communities.

## 10.2 STAKEHOLDERS PARTICIPATION IN URBAN INFRASTRUCTURE DESIGN AND IMPLEMENTATION: EXPERIENCES AND CHALLENGES: A CASE OF HANNA NASSIF PROJECT, DAR ES SALAAM, TANZANIA

*W. J. Kombe<sup>1</sup>, University College of Lands and Architectural Studies,  
Tanzania*

### 10.2.1 Abstract

This paper is intended to describe the participation of the users in Hanna Nassif community based infrastructure improvement project. The paper describes the steps in which the key actors in the Community (Community Development Association members, Subward (Mtaa) leaders and other members of the community) participated in the designing and implementation of basic infrastructure.

Inspite of the deficiencies observed, such as delays or slow execution of tasks and variation in quality, an in-depth examination of the entire process depict promising results. Unlike the conventional squatter upgrading, this approach has high potentials for inducing norms for sustainability as well as enhancing local capacity. The technical skills transferred, local resources mobilised, reduction of future public management needs and not least the employment generated have consolidated household well-being and improved the overall power of the grass-roots. A plea is made for more attention to nurture the concept and improve it by for instance defining or developing communication tools for stakeholders, rationalising the process and evolving structures for facilitating wider spread stakeholders participation in infrastructure design and implementation.

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<sup>1</sup> Kombe is a Lecturer at the University College of Lands and Architectural Studies and the Project leader for the Hanna Nassif phase II community based infrastructure improvement project. The author wish to acknowledge with thanks the critical remarks made on the preliminary draft by COWISERVICE Plan Directors and Engineers as well as the contribution by the project technical support team and ILO/ASIST.



## 10.2.2 Introduction

The growing plethora of literature about stakeholders or users participation in the provision or improvement of community infrastructure services and facilities<sup>2</sup> suggests a declining role of the public dominance in the service provision sector and the need for new options. With the increased pressure for more decentralisation and democratisation over the past decade, substantive participation of the users in all levels of development projects is likely to become centrepiece of development discourse in the coming decades.

Yet there is hardly a consensus as to what participation really entails; how it should be undertaken or even be facilitated. Citing Uphoff et al, (1979) Fekade notes that whereas economists tend to conceptualise participation in terms of involvement by (rural) people in sharing of benefits, development administrators focus on people taking role in implementation, political scientists on the other hand, perceive participation in terms of involving people in decision making (1994:60). None of these sectoral conceptions, however, satisfactorily fit the stakeholders participation as undertaken in Hanna Nassif project.

In Hanna Nassif project, participation of the stakeholders has focused on active substantive participation of beneficiaries from the very initial stages of the project including the identification of the problem, the identification of options and implementation<sup>3</sup>. Methods used to promote participation of the stakeholders include delegating key responsibilities and decision making to the community members and capacity building of both the local organisation (CDA) and individual community members. Participation of the users has not been a one-touch activity, but a continuous process involving several actors and processes.

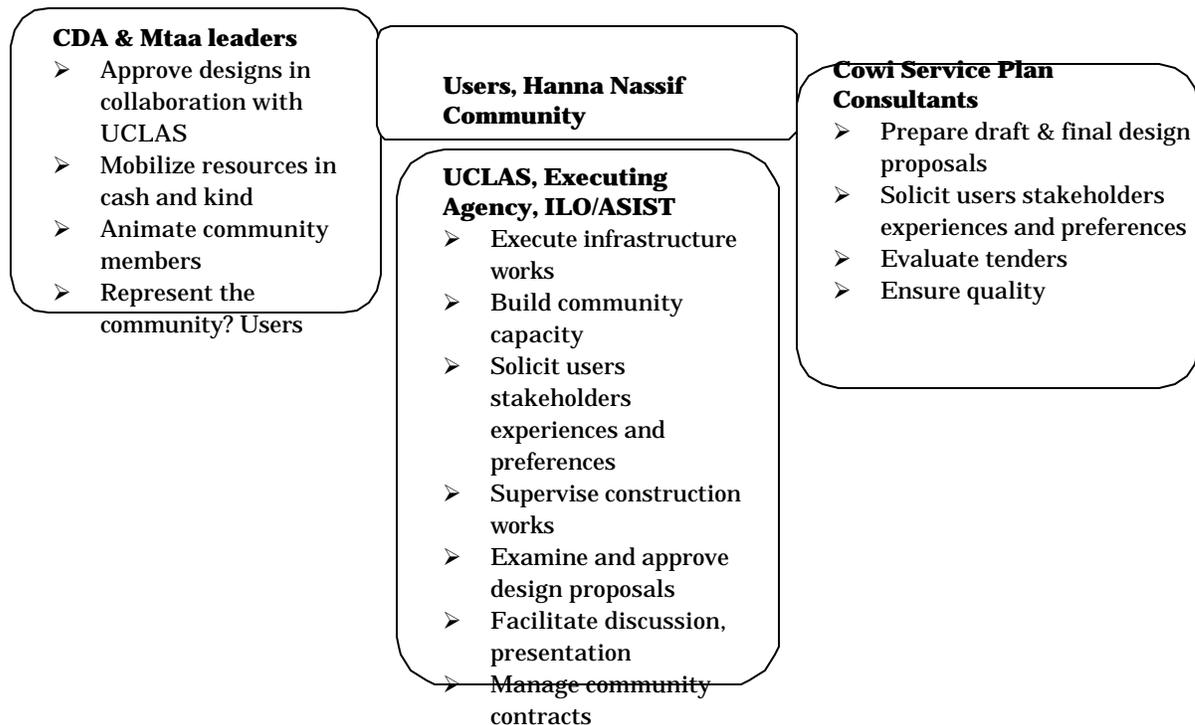
The key actors in the phase two project implementation are the University College of Lands and Architectural Studies (UCLAS) as Executing Agency; the International Labour Organisation (ILO) as an Associate Agency, COWI SERVICE PLAN as the engineering design consultants; the local Community Development Association (CDA) as the key actor at the local level and the representative of the ultimate owners or users<sup>4</sup>, also see diagram 1).

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<sup>2</sup> See for instance Satterthwaite and Hardoy (1989); Garcia-Zamour (1985); UNCHS (1985; 1987); Hardoy et al; (1992); Yap (1993); Kombe (1995); Kombe and Volker (1997) and Choguill (1999)

<sup>3</sup> Substantive participation as used here refers to a situation where users practically share and influence decision making by freely expressing their experiences, needs and priorities.

<sup>4</sup> The first phase of the Hanna Nassif project was supported by UNDP, Ford Foundation, ILO and UNCHS.



### 10.2.3 Hanna Nassif Socio-economic Characteristics and Community Organisation

Hanna Nassif is one of the 54 major informal settlements in Dar es Salaam City. The settlement is located about 4km. from the City centre and covers 50 hectares. Overall the land slopes gently from North to the South. Msimbazi valley which surrounds the settlement to the South-east and South-west constitute the main discharge basin for storm water run-off.

Hanna Nassif settlement is a low-income area, with about 22,000 inhabitants constituting 5.045 households in 1895 houses. Most of the residents are self-employed outside the settlement. The main income generating activities include farming and petty trade. A few residents are salaried, most of the latter are employed in the service sector in city centre.

As a result of the phase I community infrastructure improvement which was carried out between 1992 and 1996, when the phase II project commenced in April 1996, an active Community Development Association (CDA) with about 400 members was in place. By many yardsticks CDA was a strong organisation. It had an office building, interim leaders and a bank account which was operational<sup>1</sup>. Further, most of the CDA leaders were knowledgeable about the community-based infrastructure upgrading concept and well versed with a number of technicalities inherent in project

<sup>1</sup> CDA is the main grass-roots organisation that facilitated community participation during phase I.

implementation including administration of “community contracts”, material procurement and other administrative aspects of the project. Phase I project components included improvement of one kilometre murrum road with lined side drains, 1.5 kilometre side drains and 600 metres main drain, 700 metres footpath along the main drain and roads, two major protected outlets for drainage discharge into Msimbazi creek, more than 10 road drifts and 10 vehicular culverts crossing. Phase II covers construction of 2.6 km of storm drains, 2.0 km gravel roads, 35 road crossing, 4km side drains, 25 footbridges and water supply network consisting of 10 water kiosks and also improvement of solid waste collection system<sup>2</sup>, see map 1.

#### **10.2.4 Acclimatisation and Initial Animation Sessions**

When phase two commenced, decision on the types of infrastructure and their alignment routes had been agreed upon by the community. Therefore in the initial process of executing phase two, discussions between UCLAS and the CDA leaders focused more on why and how the community would participate in the infrastructure design and implementation and getting to know each other rather than on what infrastructure would be built and where.

In an attempt to clarify the importance of the engineering design in the entire exercise, reference was made to some of the problems which emanated from insufficient experience and failure to appreciate the need for engineering design and expertise during phase one<sup>3</sup>.

During the initial discussions we already observed problems associated with lack of patience among the CDA members who felt that the executing agency (UCLAS) was spending too much time talking instead of carrying on with construction. Many a time the TST members were confronted with the question, “when will the actual construction start? How long will these discussions last etc.”<sup>4</sup>. This indicates that most of the residents saw their role as actors during construction and not during the design process. Most

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<sup>2</sup> Total project budget for phase one was 608,000.US, whereas phase two budget is about million US.

<sup>3</sup> This refers to for instance the case where the local residents had without engineers advise or support dug a drain with intention to channel storm water off their housing simply because they thought that the land form (gradient) was sloping away from their houses, only to find the water flowing into their housing area.

<sup>4</sup> In spite of repeated explanations that unlike phase one, in phase two, animation of the community members shall constitute the entry point to the project design and implementation processes, CDA and the community at large wanted UCLAS to commence construction immediately after signing of the contract. This was understandable because what seemed to matter among most settlers was tangible benefits including access to paid jobs.

of them appeared reserved and felt that design a reserve for experts. After clarification that the intention was not to require them to prepare design proposals but to give their views and actively contribute by narrating their experiences and options, gradually they could see their role. When it was pointed out that the community members would be responsible for identifying the most convenient location of the proposed water kiosks as well as carrying out negotiation with land owners in order to persuade them to donate the land required for kiosks before the engineers could embark on detail designs for the kiosks, most CDA members became excited and found this idea not only appealing but a practical area of interest.

### **10.2.5 Pre-design Participation**

The major strategy adopted to ensure stakeholders participation during the pre-design stage was to require the four pre-qualified consulting firms to mandatorily arrange meetings with the community members and solicit their proposals during the reconnaissance survey.

Often discussions were conducted in a casual manner i.e. without formal procedures. This was important in order to stimulate discussions among the local community members and create conditions for them to freely and openly give their views and experiences based on critical reflection on their social and physical environment.

Participation of the CDA members, however, became more lively during site visits apparently because then every member could point out and narrate his or her experience about infrastructure problems in the neighbourhood. On the other hand CDA leaders active participation became more conspicuous during the site visits because then they were able to accentuate their role and also impress upon the residents that they (CDA leaders) were working hard to find solution to the their problems<sup>5</sup>. The most often asked questions during the reconnaissance tour in the area were: Why is it that only road number 2, 3 and 4 will be improved; Why not this or that road? What will happen to houses which have been built too close to the road or proposed drains? Will the project pay compensation if a house is demolished ?

During the reconnaissance surveys, the consultants seized the opportunity to initiate discussions with the CDA members and other community members met along the route. These discussions were intended to solicit residents views as regards their dislikes and likes, and their assessment of the performance of the infrastructure such as the trapezoidal drains which were

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<sup>5</sup> In view of the local politics in Hanna Nassif bragging by the CDA leaders seems to have been a deliberate move or gesture intended to thwart attempts by some community members who had been challenging the legitimacy of the CDA.

constructed during phase I. Apart from request for providing footbridges most residents preferred open drains to closed ones (the CDA leaders recited their experiences and confidently maintained that open drains were better because they are easy to clean)<sup>6</sup>.

### **10.2.6 Participation During Preliminary Design Stage**

When CowiService Plan consultants were selected and awarded the contract to prepare the engineering drawings for the infrastructure services, it was projected that the design phase would be accomplished within a 4 weeks period. However, for various reasons design proposals were only completed after nine months. The delay was mainly attributed to:

- underestimation of time required to make contacts and to reach consensus among the key actors in the project
- unforeseen problems associated with difficulties of carrying out detailed cadastral survey (along the routes) in a densely built informally housing area
- unexpectedly long processes and time consuming exercises required to negotiate with owners of the land required for the water kiosks
- frequent and at times changing demands from the actors involved. This includes additional assignments and change of design and presentation materials. In an attempt to ensure that the overall costs of the execution of the project are within budget, a lot of time was spent negotiating with the designers and identifying areas where cost cutting measures had to be effected. This in particular refers to costs for the water supply system.
- an internal conflict within the community culminated into temporary suspension of the activities of the two CBOs for four months<sup>7</sup>.

The TST, the CDA and some community members attended the presentation of the draft design proposals by the consultants. Using Kiswahili the consultants gave in-depth explanation on the proposals they had prepared for water supply, drains and roads construction. Bright colours (marker) pens were used for the

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<sup>6</sup> In spite of these lived experiences narrated by the community members, one of the consulting firms, quite unexpected proposed a closed drainage system.

<sup>7</sup> Hanna Nassif Community Trust Fund (HNCDF) is the initial CBO which was established in Hanna Nassif in 1994, later, because ideological differences and varying interests particular scramble for power among the Trust Fund members the CDA emerged. There was also a misconception among Trust Fund members about their role in the use of the project funds.

participants to ease visualisation. During the presentation the community members often wanted to be assured that the proposed size of the drains and roads would not affect the adjoining houses.

### **10.2.7 Designation of Land (Sites) for the Construction of Water Kiosks**

While the consultants were preparing the design for infrastructure services it had been agreed that the CDA would in collaboration with the local community members identify potential sites for locating the proposed 10 water kiosks. After the CDA had visited several areas and carried out initial negotiations with the land owners, the TST members joined the CDA to assess the individual sites and the geographical distribution of the same in the neighbourhood. During the visit it became clear that most land owners were adamant to donate their land until modalities for sharing profits from water sales from the kiosks and the overall management arrangement for the same were known and agreed upon.

After assuring landowners that the modalities for running and sharing profits from the water sales at the kiosks will be concluded before final designs are made, all of them co-operated fully. It is at this stage the consultant were invited to work with the CDA in order to take measurements for the size of the plots which the land owners were willing to contribute before final designs could be prepared<sup>8</sup>.

### **10.2.8 Final Designs**

The consultants amended the draft design according to the recommendations of all stakeholders, which was presented to all stakeholders using visualisation techniques. Issues as cost and maintenance implications of various design options were discussed with the community, and final designs were selected. After the presentation the consultants, the TST, CDA and Mtaa leaders once again went around the area in order to make on spot assessment of the practicability of the solutions opted for the critical problem areas.

This time, the visualisation techniques included a comprehensive drawing (scale 1:1000) of the entire housing area showing the proposed improvements and all the existing buildings. With this drawing the location of houses which belong to some of the CDA members as well as alignment of the proposed infrastructure could be located, and as result many members were better oriented to follow the presentation.

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<sup>8</sup>The consultants had to change the size of the kiosks after realising that some of the land that will be available will be too small to accommodate the kiosks they had proposed.



### 10.2.9 Construction

It took around nine months to finalise the designs, and it is thus needless to add that even renown consultants may have difficulties of coping with such a time demand to communicate with the community. Furthermore, the CDA and the community members as a whole were increasingly losing patience with both the implementing agency as well as the engineering consultants.

In order to avoid further delays and subsequent demoralisation of the community members, it was agreed to start 'peace meal' construction of some sections while the consultant finalises the design work<sup>9</sup>. After discussions with the CDA it was agreed that construction of drains be undertaken as the first priority, primarily because control of floods was the most felt problem in Hanna Nassif.

As a result of the good work which was done to build local capacity during phase I, phase II inherited a well experienced "Construction Committee" with a foreman as the head, and team members who were both conversant with the project and ready to handle most site works<sup>10</sup>. Engineers are, however, at the site to *inter alia* ensure plan or organise the work and ensure quality control. They are also responsible for advising the community in situations where adjustments or changes have to be made on the design. Jointly with the construction committee the engineers prepare cost estimates for the community contracts and approve the procurement of construction materials. The CDA and Local (Mtaa) leaders on their part mobilise residents and also negotiate with the property owners in cases where disputes were eminent, (see diagram 1).

### 10.2.10 Challenges

Users participation in the implementation of infrastructure in Hanna Nassif was not only intended to ensure effective deployment of local resources (e.g. labour ) but also to transfer of skills and build local capacity in form of enhancing responsibilities in maintenance and the overall management of the future CDA activities. However, users participation in design of infrastructure services is a fairly new approach, which poses some challenges which are worthy underlining:

- It is difficult for most community members to conceptualise and understand technical drawings. The use of plans to exhibit physical (infrastructure) structure does not often convey the correct message to a lay person. Use of visualisation tools including models in scale and three-dimensional drawings would

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<sup>9</sup> Fekade (1994):170) citing Uphoff (1979) cautions that participation of stakeholders is likely to wither if a promise to deliver a certain service ( tangible) which was the basis for the participation is withdrawn or suspended.

<sup>10</sup> The Construction Committee is a subcommittee of the CDA.

be ideal. This requirement would, however, imply additional costs.

- Participation of stakeholders is a time-consuming process, which most consultants are unlikely to endure without additional pay. This may increase the costs and the delays may demoralise stakeholders. It thus appears necessary to develop clear methodologies and strategies for stakeholder participation in planning, design, construction and maintenance (including scope of work, stakeholders participation chart, communication tools and design outputs from a consultant).
- In the project, the planning stage overlaps with the design stage, which may lead to unforeseen delays in the design. For instance most of the discussions, negotiations and formalisation of the preliminary agreements which were conducted during the design phase could have been undertaken as planning tasks. This suggests the need for a phased approach and a varied (more output oriented and efficient) mode of remunerating consultants commensurate with the stage of their engagement.
- In the planning phase, enough time is required to allow for the internal organisation and evolution of teamwork spirit between all stakeholders. Many projects including Hanna Nassif have shown that the more actors are involved in a project, the more the time is required to develop common vision, expectations and most importantly appreciate the ultimate values inherent in the concept.
- User participation in the implementation may result in lower productivity when compared with conventional construction systems. However, the capacity building of communities to maintain infrastructure may well reduce the life-time costs of infrastructure. Detailed cost-benefit analyses are needed to provide a better understanding.
- When community members are left to act on their own, for instance in procuring construction materials occasionally they buy poor quality or sub-standard materials which may affect the quality of the outputs. Institutionalisation of quality control measures would appear to be an important aspect even though the quality and performance of the infrastructure built through labour based skills has so far proved to be quite satisfactory<sup>11</sup>.
- Conflicts may arise within the community due to heterogeneity, varying interests among community members, and changing

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<sup>11</sup> The stability of the infrastructure services built during phase I was successfully tested last year during El Nino. Surprisingly none of the services provided suffered any serious damages.



power structures. Needless to emphasise that while complex relationships and heterogeneity in the local community could constitute a barrier to substantive participation, the effect may be overcome, or at least mitigated, if glaring structural differences in a society are critically a priori examined and not taken for granted.

- One of the prerequisites for consolidating the approach is to adapt it and campaign for a wide-spread (city and town level) application. In order to achieve this, however, local governments and institutions responsible for infrastructure development have to change their attitudes first about local community abilities and about Labour Based Technology. Training institutions on their part can and should play a leading role by changing the software so as to breed a generation of engineers and planners who are not only ready to design with community but also work with them using labour based skills.

### **10.2.11 Lessons Learnt and Conclusion**

Although it is too early to bring forward the outcomes of stakeholders participation in the design of basic infrastructure services in Hanna Nassif, it is imperative to underscore here the key issues which emerge from the stakeholders participation in the Hanna Nassif project:

Firstly, participation of stakeholders in design process is a new approach not only in the engineering field but also other disciplines including planning and architecture. There are however increasing initiatives to disseminate the approach. In so far as the Hanna Nassif case is concerned, the specific project circumstances such as the existence of an organisation and experienced local organisation (CDA) seem to have influenced the high level of participation achieved. Further the fact that stakeholders participation in the design was being undertaken after phase I execution, created enthusiasm among many residents who had seen their neighbours in a better living environment following phase one infrastructure improvements. It is therefore likely that the degree of participation could have been lower had it not been for the phase one outputs.

Secondly, users have participated in making the most important decisions pertaining to the design and implementation of the project. Residents were inspired to participate because they wanted to gain, share benefits i.e. so that the road, drain or water system which will be provided run close to their houses<sup>12</sup>. This is manifested by the fact that most of the residents who were frequently attending meetings and presentations were those from the residential areas which were not improved during phase I (Kaseva 1997). In other words for residents to actively participate

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<sup>12</sup> Some participated primarily because they expected to be employed in the project.

(in design of infrastructure service) they have to perceive tangible results of their engagement.

Thirdly, stakeholder participation in Hanna Nassif project, was a continuous process that cuts across pre-design and post-design stages. It is therefore difficult to draw a demarcation line or delimit stakeholder participation to any definite stage of the process. As noted, in community infrastructure improvement projects design phase often continues even during implementation. Amendments are often made at the site, this in turn may create stimulating environment as members of the community challenge one another and try to exhibit the skilled learnt in the course of searching for options.

Fourthly, the successes recorded in Hanna Nassif can hardly be dissociated from the strong neighbourhood leadership under both the Community Development Association (CDA) and the Sub-ward leaders. An experienced and widely accepted leadership was of great help in mobilising, and leading discussions among the residents during presentations. However, the effectiveness of an organisation such as the CDA could be greatly enhanced if stronger linkages are forged with the key stakeholders at the community level and the city level.

Fifthly, stakeholder participation in Hanna Nassif project started already during project formulation stage<sup>13</sup>. The design of drains, water supply system has been strongly influenced by residents views and preferences. The type of drains, the alignment within the housing clusters and location of water kiosks were influenced by residents both men and women.

Stakeholders participation in design of basic infrastructure is often an expensive process that necessarily demands time and patience which many do not have. As may be expected a part for the motivation for a serious consulting firm to tender and participate in a project is to make profits. Repeated fieldwork, elaborated details and illustrated presentations are costly. Substantive participation also imply higher management costs, and make the project more complex to administer. The consultants have repeatedly shown concern regarding the profit which will be made in this engagement<sup>14</sup>. The Hanna Nassif project is a good example which may show that even experienced consulting firms have to be ready to learn the intricacy of designing with the people and not for the people. This underscores the need for evolving more elaborate

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<sup>13</sup> The community played active role in the definition and prioritisation of the problems already during phase I During phase II, short-listed consulting firms made extensive discussions and consultations with residents before they could prepare and submit project (consultancy) proposals.

<sup>14</sup> Admittedly the consultants have put in more in the design than they had anticipated and probably budgeted for. However, it is not all losses, they have hopefully made a name for future gains in similar project.



working tools and clearer output formats for engaging consultants who are required to work in an informal area. From a glance, the cost of the whole process appears high. However, in-depth analysis in particular long term impacts suggests the contrary. Doubtlessly, technical capacity of the local community members including ability to manage development initiatives, use of technical drawings and construction skills has been enhanced. That many persons (both men and women) who have worked with the project have found jobs in the construction activities in the city, suggests that their power to compete has increased.

Considering the experience so far learnt from the Hanna Nassif project, it suffice to reiterate that it is not only the users who need time or patience to learn and adopt to the new approach but also consultants, individual technical personnel involved and institutions.

What can be furthermore inferred from the stakeholders participation initiatives taken here is that norms and behaviours which are conducive to sustainability of the improved infrastructure have been consolidated. Some of the mistakes which could be committed at design stage have been avoided because users views and experiences were tapped to shape decision making. What is also incontestable is that participation has engendered greater sense of solidarity among the community members, raise awareness and greatly improved self-esteem or confidence among the users. The raising number of women involved and getting skills in construction activities indicate that the well-being of some households is or will improve.

As noted, the achievements recorded here is a result of interaction of many actors and social processes which have by and large reinforced one another. Experience suggests that these can be easily faltered if destabilised by political motives or economic interests and misconceptions<sup>15</sup>. It is for this reason that continuous nurturing and adaptation of the concept to the local context is considered a necessary precondition during its replication.

### 10.2.12 References

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<sup>15</sup> Experience has shown that links with political and administrative power structures are a *sine qua non* for the effectiveness and sustainability of grass-roots organisation. However, the role of political actors in enhancing and supporting meaningful participation in development projects *inter alia* depends on unambiguous comprehension of the concept.

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