

MANAGING THE TRANSITION FROM FORCE ACCOUNT ROAD MAINTENANCE TO CONTRACTING

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ABSTRACT

Many countries have recently gone through a process of transforming their force account or direct labour road maintenance operations to a private sector contracting environment. To assist in preparing guidelines on how best to perform this process, case studies were carried out in Lesotho, Malawi, Mozambique, Tanzania and Zambia. At the time these countries undertook the transformation, the process was new, and a sharp learning curve often meant that insufficient attention was paid to the human resource implications in both the public and private sectors. In a number of cases public sector employees were left idle whilst the private sector was expected to take up the reigns with only a few trained and qualified staff.

The lessons learnt from these cases can be used by other countries embarking upon this transformation to avoid similar problems. A systematic approach is recommended that includes the stages of 1) situation analysis; 2) planning and preparation; 3/4) phasing out force account and phasing in contracting as a joined up activity; and 5) monitoring and evaluation of the program. Every country considering change has different characteristics and this paper presents a range of options to be chosen depending on circumstances.

1. INTRODUCTION

This paper has two parts. The first reviews case studies in Lesotho, Malawi, Mozambique, Tanzania and Zambia, and identifies lessons learned that can be used by other countries. The second part gives best practice and knowledge sharing on how a Government road agency should prepare for phasing out force account procedures in the public sector and creating an enabling environment for contracting out road maintenance. In both instances, special attention has been accorded to issues pertaining to the human resources management challenges related to the transformation. In the past many countries have gone through the process in an abrupt manner, and a systematic approach is recommended as illustrated in figure 1 below:

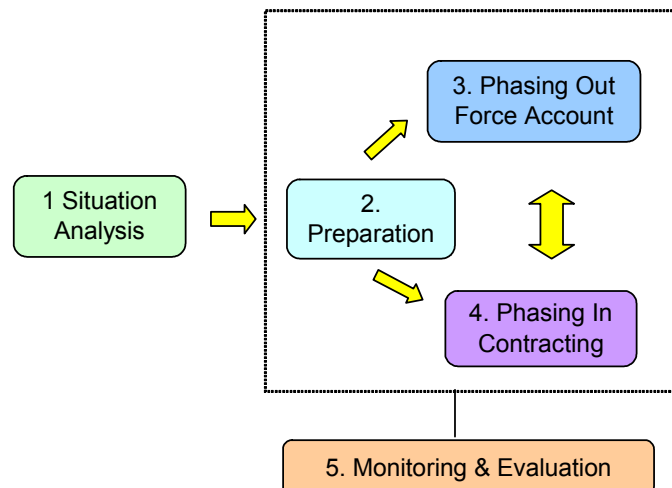


Figure 1 – The Guidelines' Five Steps

This paper has been produced with the financial assistance of a grant from TRISP, a partnership between the UK Department for International Development and the World Bank, for learning and sharing of knowledge in the fields of transport and rural infrastructure services. It is based on World Bank Transport Paper TP-11 [1], with a focus on human resource issues.

2. CASE STUDIES

2.1. Lesotho

Lesotho is a small landlocked mountainous country surrounded by South Africa with a population of 2 million. It has 1,350km of paved road and 6,050km unpaved. In 1993, the Government decided to involve the private sector in creating employment opportunities for migrant workers returning from the mines in South Africa. The local construction industry at that time had capacity only to carry out building works, and no local contractors were available to execute road maintenance.

In 1994, the Department of Rural Roads (DRR) embarked upon a Contractor Training Program (CTP) with internal and external support. The immediate objectives were to: (a) establish a cadre of new entrepreneurs trained in labour-based works methods; (b) strengthen the institutional capacity of the DRR to manage CTP effectively and efficiently; (c) strengthen the capacity of contractors through training of their staff; and (d) review procurement and financial procedures to allow new contractors to compete for and execute road maintenance works. Seth[2] found that the CTP has made road maintenance not only efficient and cost effective, but has had a positive impact on poverty reduction by generating temporary employment for more than 4,000 workers. Specific initiatives ensuring the sustainability and impact of this program include: a promise of one initial contract without competition for all contractors, the creation of a small contractor association which serves as an advocacy group for contractor concerns, efforts to target women for contractor training and a new emphasis on branching out the training for footbridge construction. The CTP in Lesotho is a good example of the promotion of small-scale construction industry in the region, and contractors from other countries are already participating in this program. Today there are 105 contractors of varying quality and size in the country.

2.2. Malawi

Malawi is a southern African land locked country with a population of around 12 million. It has a road network of around 15,400km and spends about \$15 million a year on road maintenance. Most road maintenance is now contracted out. In 1995 when most of the Ministry of Works (MOW) casual staff were laid off, the structures to reabsorb them were not in place. The local contracting and consulting industries had only just started at that time and are still weak today. In 1997 the National Road Authority (NRA) was created but the role of the Director of Roads, MOW and his staff was not clearly defined in the NRA Act. This led to many skilled road sector staff languishing under-utilized in the MOW Regional Offices. There have been plans to transfer these employees (68 technicians and foremen) to local government but the process has not started. Initially there was a lack of communication between ministries. The MOW did not transfer these staff since it believed civil service approval of the structures in the local councils was not in place to receive them but the Ministry of Local Government felt that was not the case, and that MOW was stalling. There is currently a force account unit called the Bitumen Training Unit employing around 80 staff controlled by MOW. This unit only just survives, largely by winning

commercial contracts. The lesson learned is that for the permanent public servants, their terms of employment is not just the responsibility of the reforming Ministry but rather the central public service management arm of government and that there should be proper and continuous communication with all stakeholders right from the start of the process.

The reform process resulted in a dip of road sector technical training in the later 1990s and early 2000s. The Government Roads Training Centres closed down, and although the Bitumen Production Training Unit provided some training the previous comprehensive training system has only recently started being re-established by the National Construction Industry Council.

Many Malawians believe that the transformation has resulted in less domestic ownership. Force account works units and Ministry design departments that were managed by locals have been replaced by foreign contracting and consulting firms. Many NRA projects are strongly influenced by donor financed TA, whereas in the past Malawian engineers in the Ministry made the key decisions.

2.3. Mozambique

Mozambique has a population of around 20 million and a classified road network of 30,000km. Today there is no force account maintenance and about \$19m of road maintenance work is carried out annually through around 250 contracts. Prior to 1983 works were done by force account. At that time there were around 10,000 workers under the road maintenance budget, and over a four year period, starting in Maputo, 10 Government owned companies were created called ECMEPs, one in each province that inherited staff and equipment. The provincial governments directly awarded works to these companies at negotiated rates. In 1995 training of contractors started in three provinces and building contractors and other entrepreneurs were converted into road contractors. By 1999, there were 60 or 70 contractors in the provinces and financial competition commenced with the phasing out of fixed prices. The ECMEPs were then consolidated into 3 regional companies with a view to privatization but this has yet to occur. Today these ECPMEPs have severe financial problems. Since 2002 they have to tender like any other firm, yet they have many workers who they cannot afford to pay off and equipment is old and unreliable. One regional manager stated that they have a monthly wage bill of \$40,000 and an income of \$10,000!, There is an example of a successful privatization of a state owned contractor in the country called CETA. This state company was formed from 7 private contractors that were abandoned when the majority of the Portuguese left in 1976.

In addition to works execution, the supervision function was also transformed from government to the private sector. The previous supervision department has now transferred its staff to 7 or 8 existing private consultants. Fortunately, in this case the Road Fund paid all the staffing liabilities since these staff were all directly on their payroll anyway as Government employees. This transfer of staff has been a success for the majority of the consultants.

The Federation of Contractors believes it is time now to concentrate on small to medium contractors. Current procurement rules reserve contracts of less than \$200,000 for local firms, but this is considered too low. Capital is a major constraint for the smaller firms. Interest rates are 22% and borrowing in foreign currency has recently been prohibited by the Central Bank. Bid bonds tie up finance while tenders are being evaluated.

2.4. Tanzania

Tanzania is an eastern African country with a population of around 37 million and a classified road network of about 85,000 km. The process of transforming force account started with in 1990. Force account methods had broken down and the need to develop a local contracting industry was crucial. Fortunately, one of the first National Construction Councils in Africa was established in 1979 and this institution pioneered a number of initiatives to develop the sector. These reforms enabled the contracting industry in Tanzania to expand dramatically over the last 20 years. In 1986 there were 43 contractors in the country of which 23 were civil contractors and only 10 of these were local firms. After the last reforms in 2000, establishing the management agency TANROADS and improving the legislation and management of the roads fund, the agency has had more than 2000 road works contracts per year. A major reason was that the new road fund facilitated a much better predictability of maintenance funding, and this enabled the SMEs to develop well. While by 1996 there were 600 civil works contractors, the corresponding number today is more than 1,500 with about half of them in the lowest Class 7 and the Ministry of Labour has been able to see its impact in rural employment in the country. Improvements in contractors' quality and management capacity has been promoted through contractors' training programs, and to some extent through Greenhouse/Sheltered market contracts in cooperation with the industry associations.

Nevertheless, the Tanzania Association of Civil Engineering Contractors remains concerned that the bulk of road expenditure goes primarily to foreign firms. However, trust funds are being set up to support local contractors. A serious problem for many years was the ability of small emerging companies to secure guarantees and bonds. The National Construction Council and Contractors Registration Board have each established trust funds providing guarantees to contractors. The CRB's Contractors' Assistance Fund has provided guarantees to over 400 contractors and only one has defaulted since 2002.

A Construction Industry Development Fund, Tanzania was set up in 2003 by the NCC with the aim of:

- ❖ Providing funds to firms on easier terms than traditional banks
- ❖ Act as a guarantor for loans
- ❖ Provide loans for equipment and tools
- ❖ Provide training in business development
- ❖ Foster alliances among local firms and with foreign
- ❖ Manage a construction warranty scheme

Management and board of directors come from contractors, consultants and suppliers. Sources of funds include membership fees, equity contributions from members, donations, grants, loans, and commissions on loans and guarantees.

2.5. Zambia

Zambia is a land locked southern African country with a population of around 12 million and a road network of around 67,000km. Prior to 1993 Force Account road maintenance was the norm. Government funding diminished sharply in 1988/9. In 1990 Government as a whole was restructured and many staff including those in the road sector were retrenched. Force account works almost entirely ceased rather abruptly in 1993 with some social problems. Redundancy payments were often late and little training was given to these staff to cope with their new circumstances.

The 1995 National Construction Industry Policy led in 1998 to the creation of the National Construction Council (NCC). It acts as a registrar, regulator, arbitrator and disciplinary body for the industry and trains contractors having recently absorbed the Roads

Department Training School. This School has been instrumental in developing labor based contractors who were given “greenhouse” contracts between 1996 and 2001 in the Eastern Province. There has also been little development of medium scale contractors in the country resulting in the bulk of road expenditure going to foreign companies.

A meeting of local consultants in October 2005 recommended setting up contractor development scheme through: a) Greenhouse contracts supervised closely by NCC with mentoring, training and easy terms built in, b) avoiding onerous contractual obligations for bid, advance and performance bonds and liquidated damages c) avoiding contracting when finance is not secure, d) rolling out training program nationally for small contractors but targeted at road sector people, e) providing \$1m soft loans to medium scale contractors against collateral, and f) training Government staff in managing contracts and if made redundant, how to set up their own businesses.

2.6. Lessons Learnt

- ❖ The key lesson is that a systematic approach is required that not only develops an enabling environment for developing small and medium scale contractors and consultants, but fully caters for the government employees that remain or need to be retrenched or re-deployed. In other words gradually phase out force account and phase in contracting with finance to cover the social costs. In the past too little attention has been paid to the phasing out part. The costly attritional or “do nothing” option regarding government staff and equipment must be avoided.
- ❖ Part of the phasing out process is to carefully define the roles of the Ministry and any new agencies set up to manage the sector. There is a need to avoid duplication of function and lack of clarity of roles and responsibilities.
- ❖ There are many options for phasing in the contracting process. These include support from institutions such as construction councils and credit brokers, and appropriate training and packaging of contracts for small and medium contractors.
- ❖ In some cases the transformation has resulted in the creation of agencies that centralize management of the sector and this can be counter to poverty reduction policies where the poor are mostly in rural areas. Contractors tend to be mainly available in the major towns so schemes need to be set up to develop them in the provinces and districts. Local administrations tend to lack capacity and in many cases there are opportunities to absorb redundant staff from central government.
- ❖ The lack of relevant domestic commercial and management skills may result in an influx of foreign firms so care needs to be taken that the local industry does not get swamped. Donor financed projects may result in administrations becoming overly dependant in foreign advisors so procedures that use appropriate professionals within road administrations need to be followed.
- ❖ Plans should be put in place for support functions in the industry. Too often training or materials testing functions have been neglected for long periods while the transformation process takes place.
- ❖ New contractors are unlikely to be successful if they are staffed solely by former public sector employees. Strong commercial skills need to be developed and hence staff with experience of the private sector should be employed to work along side transferred staff.

- ❖ Governments should take a keen interest in the corporate governance issues of quasi government agencies emerging from the transformation process because failure of the agencies has undesired consequences on former public servants.
- ❖ De-linkage from Government also means de-linkage from well established and tested human resource management systems. There is a need to ensure that appropriate systems are in place.
- ❖ Initial carefully designed degree of “protection” may be necessary to ensure that the newly created entrants to the construction industry are not immediately exposed to the market forces.
- ❖ Re-training of force account workers and creation of small contractors need not focus solely on individuals. Retrenchment training programs of rail workers in Mozambique have also explored creating small contractors from groups of 5-10 retrenched individuals. This has the dual outcome of spreading financial risk and building increased capacity for the new enterprise.

3. GUIDELINES

3.1. Situation Analysis

3.1.1 Strategic Analysis

The first task is to prepare some basic statistics on the sector to set the context, scope and scale of the transformation. This will include an inventory of the road network and workload in terms of maintenance funds required for road lengths of various classes, at national and local levels. It should take into account road condition, maintenance backlog, strategic development plans, traffic levels and vehicle fleet in country and compare this with current funding arrangements.

Also required is data on current capacity in terms of staff numbers and skills, equipment holdings, for both private and public sectors. This will include reviewing administrative structure of the sector in terms of Ministries, local councils, road agencies/authorities, construction councils, road fund agencies, equipment hire centres, banking facilities, degree of decentralization etc. Such information would allow the true costs of force account to be identified to assist in the justification of transforming to a contracting environment. An overall evaluation of the situation in the country should be prepared and illustrated as shown in figure 2.

Public Road Sector		Private Road Sector	
Legal Framework	G	Construction Industry Policy	E
Transport Policy	M	Contractor Registration System	G
Road Maintenance Strategy	E	Contractor Training Program	M
Institutional Structure	P	Contractors Associations	G
National Construction Council	G	Credit Availability	P
Leadership	E	Bonding & Contractual Environment	P
Central Capacity - skills/numbers	G	Capacity of Large Contractors	G
Local Capacity - skills/numbers	P	Capacity of Medium Contractors	M
Adequacy of Funding for Roads	P	Capacity of Small Contractors	P
Financial Control	M	Quality of Work	M
Governance & Transparency	M	Volume of Work	G
Personnel Management	P	Regularity of Work/Payments	P
Road Management Systems	M	Availability of Equipment	M
Autonomy of Road Agencies	P		
		Excellent	E
		Good	G
		Mediocre	M
		Poor	P

Figure 2: Indicative Road Sector Evaluation Grid

Government legal instruments such as a Road Transport Act may need to be updated in terms of road classification, institutional set-up taking into account, where appropriate, autonomous road funds, agencies and local authorities. Strategies and policies in regard to management and financing of roads, network development, removal of backlog and maintenance should be evaluated. It is important that maintenance is given high priority. Policy statements may not be in just one document such as the Transport Policy. Other relevant policies may include those for the Construction Industry, Civil Service Reform, Rural Development, and Decentralization. Relevant legislation may include Transport, Highways, Labour, Construction Industry, Financing, Autonomous Agencies' Acts of Parliament and Regulations. Particular Ministries or Agencies may also have strategic plans for the relevant sectors.

An analysis should then be carried out to determine whether these strategies, policies and legislation are adequate, and to what degree they are being implemented or enforced. The following questions should be asked when evaluating the policy:

- ❖ What is the quality of the National Transport Policy?
 - Does it involve all main stakeholders?
 - Is it consistent with international agreements such as the achievement of Millennium Development Goals?
 - Are cross-cutting issues such as social and environmental issues integrated into the policy?
- ❖ Are the policies or strategies feasible financially?
- ❖ Is there appropriate decentralized management?
- ❖ Is the policy or strategy sustainable? (e.g. maintenance, right level of intervention)

Assessments can then be given in terms of the adequacy of the leadership and institutional structures to deliver these policies and what capacity is available in the public organizations to manage works at central and local levels. The quality of financial control, personnel and management systems and the degree of Government transparency and accountability are important considerations. An assessment will be required of the adequacy of financing of the maintenance of the network. This work may require a study or series of studies to establish the scale, scope, context and constraints in the sector at the starting point of the transformation. Later on this information would be used as baseline data for monitoring progress of the transformation and the sector as a whole.

3.1.2 *Social Analysis*

The transformation from force account to private contracting can have negative impacts on workers because of the need for redundancy or retrenchment, but these impacts should be anticipated and can be mitigated. However such a transformation also provides numerous opportunities for poverty alleviation through labour based techniques and gender mainstreaming, the use of social and environmental clauses in contracts, and attention to HIV/AIDS outreach and awareness among workers and communities adjacent to civil works.

One important key to the success of force account transformation is proper attention to and planning for mitigation of the impacts on affected personnel. First and foremost is adequate expertise on the steering committee organising a transformation to deal with issues of redundancy and retrenchment. Appropriate identification of the impacts, skills assessments and training programs need to be devised and workers given a chance to participate in decisions regarding timing, compensation packages, re-training opportunities, etc. In some cases, training for opportunities beyond the transport sector should be considered. Support to new institutions such as small contractor associations can help to further create and sustain a safety net of resources, facilitate information exchange, provide additional training, and also serve as an important forum for dispute resolution. The involvement of all the stakeholders early in the process is important. The legal aspects of separation of staff from public service should be dealt with in an orderly manner and by the right agencies of Government.

Lessons learned in Lesotho point to the importance of addressing the gender and age dimensions of contractor training and national policies. Although some women have participated in the contractor training program in Lesotho, married women are still unable to open bank accounts on their own. This restricts their autonomy and has been viewed as an important blockage to their growth. Attention to gender and age criteria in tender evaluations can help to address some of these concerns.

In some cases under force account, many workers receive social working benefits as a part of the Ministry policy. These items cover diverse issues such as: location of camp sites and sanitation measures, worker safety, labour recruitment and payment format (with attention to gender and other relevant social dimensions), relations with local communities and authorities, etc. Inclusion of these clauses helps to ensure that the benefits of creating both assets and employment are equitably shared. It is important that contractor training programs cover social issues and mitigation measures, and that these clauses are used within contracts and regularly monitored.

Many donor funded large contracts in Africa include HIV/AIDS clauses. These clauses ensure that workers are given adequate HIV/AIDS training and access to resources (i.e., condom distribution, access to health workers, etc.) and that communities living adjacent to civil works are included in information and education campaigns (IEC). These actions help to mitigate the spread of HIV/AIDS and potentially save lives. Large contractors often sub-contract the HIV/AIDS activities out to qualified NGO's for the duration of the works. Small contractors are at a disadvantage for using this system and efforts need to be made to ensure that the clauses, activities and awareness continue, even if they are offered by or done in collaboration with the Ministry and that the activities are monitored as a part of the contract.

3.2. Preparation

Following the situation and constraint analysis described above and setting up a transformation team, government has options on how far it desires the transformation to go. A functional analysis should be undertaken addressing the following questions:

- ❖ What existing functions are undertaken?
- ❖ What functions will need to be retained and developed within the public sector?
- ❖ What new functions will need to be added to public sector?
- ❖ What new functions will need to be implemented by the private sector?
- ❖ What existing functions will be switched to the private sector?

Functions to consider can be grouped as follows: planning and defining standards, programming work, preparing and letting contracts and contract management, supervision, monitoring road condition, materials testing, undertaking physical work (including management of labour and plant) and various types of training. Other functions are common to all types of work including the general administrative functions of personnel management, finance, legal, and public relations.

Options chosen will need to take into account Government's strategy on how far it wishes to proceed with private sector participation. Options include standard unit cost, framework, area based, performance based, medium/long term and management contracts. Concessions are also an option that can include private finance, such as: Design, Build, Finance and Operate (or maintain); or Build, Operate and Transfer. Depending on options chosen, the district and/or regional engineers will need training and motivating on how to perform their new role as "network managers". They will need to think differently about what needs to be done and how to do it. They may need additional training on how to specify work for a contract and how to let and run particular types of contract.

Major changes in organizational finances will be required. Initially there is a very strong possibility that an increase in observed maintenance expenditure will be required as the organization moves towards full cost recovery. This is because many force account operations do not adopt full cost recovery principles in their budgeting. Often the costs of running capital equipment are ignored within internal government budgetary procedures. (Capital equipment is often financed via donor grants or via ad hoc payments).

A Transformation Project Team should be set up to manage the process in the Ministry or Agency responsible for roads. It should be led by a senior roads administrator and have advice available from consultants, contractors and academia. Technical assistance may also be provided to strengthen this team. The Team Leader would need to have direct access to top decision makers responsible for roads. This team would prepare and start the process of implementing the transformation work plan such as given in the example below.

Year	1	2	3	4	5	Budget \$m
Preparation Phase						
Appoint Transformation Steering Committee	█					
Appoint Transformation Team	██					
Develop Mission and Objectives Statement	█					0.1
Identify constraints & options	█					0.1
Analyse road maintenance functions & costs	██					0.4
Prepare Cabinet Paper	█					0.1
Draft legislation or regulations		██				0.1
Prepare Private Sector Participation Strategy		██				0.2
Procure & Manage Transformation Consultancy(ies)		████				0.5
Phasing Out Force Account						
Design new public sector organisation(s)		██				0.1
Prepare Personnel Transfer/Retrenchment Scheme		██				0.1
Establish new institutional framework			██████			1.0
Train Staff for new role			██████████			0.5
Transfer/retrench staff			██████			3.0
Prepare privatization scheme for Materials Lab		█				1.2
Transfer/Sell Plant & Equipment		██				-3.0
Phasing in Contracting						
Set up (or strengthen) National Construction Council	██					1.0
Establish contractors registration scheme		█				0.3
Package contracts horizontally & vertically		██████████				0.1
Create/support Contractors associations		████				0.2
Train & develop contractors		██████████				3.0
Encourage joint ventures with foreign companies		██				0.1
Review bonding and other contract conditions			██			0.2
Review contract specifications			█			0.3
Establish Industry Development Fund				█		2.0
Total						11.6

Figure 3 – Example Transformation Plan

3.3. Phasing Out: Public Sector

The decision to transform force account has profound implications on the public sector organizations managing the sector. Since much of the work will now be out-sourced, the required staffing levels will be reduced for operational/execution functions and those that remain will need a different set of skills. Hence one of the first strategic decisions to be made would be what sort of institutional structure should administer the Road Sector. Options in this regard would include:

- **Provide autonomy to road agencies.** Different arrangements will be required for different classes of road. A very small country may be able to manage everything centrally. A very large country may need separate agencies at state, provincial and district levels.
- **Strengthen existing government structures at the various levels for contract management.** This may include Ministry Headquarters, Provincial and District offices as described in the “preparation” section above.
- **Combinations of the above** such as setting up an agency managing national roads and use existing local council structures to manage local roads.
- Establish **contract management units** such as the AGETIPS (See Calvo[3]) used in francophone Africa.
- **Public Private Partnerships or Concessions.** Amos [4] finds this approach may be viable for highly trafficked main roads.

Autonomous road agencies can greatly improve the efficiency of management of national roads, and Tanzania’s road agency TANROADS and Road Fund are good examples. (Reference can be made to Heggie and Vickers [5] on how to do this.) However, at local

level Edmonds & Johannessen [6] recommend, where possible, building up the capacity of existing institutions. Care needs to be taken to ensure that any new structure does not duplicate and compete with existing government structures. Having established the institutional structure, plans should be put in place to handle the personnel implications. A number of options need to be considered, taking into account both financial and social factors which may include:

- **Recruit Chief Executive using transparent criteria** for autonomous agency who then recruits own staff
- **Transfer staff to autonomous agencies or local councils** or encourage that agency to recruit from government. (Generally it is best to recruit staff from any source but this would increase redundancy costs.)
- **Transfer staff to a government formed road contractor or contractors.** These may then be given guaranteed work for a period of time and then fully privatized.
- **Second government staff to contractors or consultants** (This has worked in a pilot project in South Africa)
- **Transfer staff from central government to local government** (This requires good cooperation between Government Ministries) as was not the case in Malawi
- **Privatize or commercialize particular elements of the organization** such as Training Schools or Materials Laboratories.

Having considered the options for staff transfers, some may then become redundant, and funded plans need to be put in place. Options here include:

- **Voluntary redundancy.** (Best staff may leave)
- **Retrenchment.** (Decisions here may not be made on the basis of merit unless done with transparent criteria.)
- **Natural wastage** – or not replace retired or resigned staff. (Staffing profile may become overly aged.)
- **Temporarily reduced retirement age** - if sufficiently good conditions are offered this will reduce the number of aged staff and may improve staffing profile.)
- **Training support** - in particular for unskilled staff, may enable some staff to get other jobs.
- **Attrition or do nothing** – although not usually an intended strategy, this often results in working conditions becoming so poor that staff eventually leave anyway.

Clearly, there are advantages and disadvantages of various methods, and combinations of the above may be best depending on circumstances. The worst option, but a very common one since it avoids making hard decisions, is the do nothing one. This largely happened in the case studies for Malawi and Zambia discussed above.

The most important consideration is staffing, but it is also important to avoid wasting other resources such as plant and equipment. Good working road construction and maintenance equipment is often scarce in developing countries thus driving up the cost of works. A number of options on how to handle Government owned plant include:

- **Transfer equipment to state owned company** (See references for Namibia [7], and British Columbia [8])
- **Transfer equipment to Government owned plant hire/leasing centre** with the option of privatizing or closing it down later once equipment has reached the end of its useful life.
- **Sell equipment** (This can be done as one big auction or a series of them, or as hire purchase). One big auction may depress the price received but low prices may be desirable to kick start local contractors businesses.

- **Include equipment as assets that contractors bid for as part of road works tenders.** This is similar to selling the equipment but ensures that it is used on road projects and also offsets agency expenditure.
- **Attrition or Do nothing** (Let equipment get cannibalized and devalue over time)

There are pros and cons of the various options and the best combination will generally depend on country specifics. Generally, many Government established contractors or plant hire companies have long term sustainability problems, but they can provide a useful transition role while the private sector builds up its experience and capability. Unfortunately, the last (do nothing) option is very common as mentioned in the case studies and is likely to be the worst economically, but again avoids the need for any hard decisions.

3.4. Phasing In Contracting Options

Let private sector respond on its own. If there is a market for contracting services with payments available on a regular and timely basis, entrepreneurs will emerge to fill the demand. These may be transporters, shopkeepers or former employees of road administrations. However, there are a number of ways of accelerating this process discussed below:

Packaging contracts is one of the best ways of providing a range work for the spectrum of the local construction industry and avoids the total value of the contract becoming too large for small and medium sized companies. This can be done vertically or horizontally. **Vertical packaging** is where projects are divided into several contracts each covering a short length of road. **Horizontal packaging** is where works are awarded within the same stretch of road according to particular activities, for example culvert contracts, drainage contracts, shoulder repairs or haulage. This method is particularly useful in that it enables some activities such as drainage to be low cost labour based and others such as providing compacted gravel would require high cost plant. It should be noted that road agency administration or supervision consultancy costs may increase but these could be offset by local firms providing lower rates.

Set up National Construction Council (NCC) to develop contractors. Such councils have been established in a number of countries. Tanzania created one in 1979, and Malawi and Zambia in mid 1990s. Brushett & Seth [9] identify four main roles for these councils namely: regulatory, contractor development, advisory to Government, and information dissemination. Tanzania separated out the regulatory function in 1998 through the creation the Contractors Registration Board although both this Board and the NCC are involved in contractor development. A number of NCCs have taken up the functions of the old Public Works Departments' Roads Training Centers. The NCC in Zambia has inherited the labour based training school for contractors, that was supported by NORAD and ILO. The Malawi NCC is actively training contractors but perhaps at the expense of the contractor registration function which is still rather weak.

Regulate contractors through registration system. Many countries have set up a national system that classifies contractors according to financial and technical capability. Zambia and Malawi register contractors through their construction councils. Care needs to be taken that such systems do not become rent-seeking exercises where contractors just pay for the classification they want, so inspection and verification of contractors' resources is essential. Registration systems may be more effective at provincial level where the logistics of verification are much easier. Andreski & Lusenge [10] describe such a scheme

for Iringa Region, Tanzania where contractors were upgraded or downgraded depending on performance.

Facilitate creation and operation of contractors associations. These associations enable contractors to promote and defend their interests as a group and this has much more weight than individuals. They can agree contract conditions, payment procedures and regulations with Government or other major clients. They can provide advice, training, financial support and improved access to banking, insurance, materials and equipment to their members. Larcher and Miles [11] identify four issues that must be addressed when planning a contractors association: 1) It must be accepted by Government as representing their group, 2) Funding must be available through membership fees or grants, 3) There must be a good number of members, and 4) Like any other organization, it must have a good leadership and management.

Provide subsidised plant and equipment to contractors. Availability of equipment is often a major constraint to domestic contractors in developing countries. One option is to provide equipment at subsidized rates. However, this option will be difficult to sustain and is probably only viable as a kick starter.

Train contractors. An emergent industry is likely to lack technical and business skills and training is a means of enabling new contractors to develop quickly. There is also likely to be a high turnover of both contracting companies and the staff within them so the training process needs to be continuous over a long period of time rather than a one-off exercise. Several types of training are available and these include, classroom training, “greenhouse contracts”, technical competitive tendering after training seminars and mentoring on site.

Classroom training can take many forms. Typical technical aspects of labour and machine based road construction include: basic road engineering, identifying objectives, project planning using critical path analysis to develop bar charts and optimal use of resources, balancing plant and equipment, quality control, site supervision, work measurement and estimating, progress charts, contract monitoring and reporting. Business skills training may include cash flow management, contract conditions, tendering regulations and techniques, bonding and contract law. This training may last from one day to one month depending on the seniority of the staff concerned but should not be too long since contractors are very busy people needing to earn money to run the business.

“Greenhouse contracts” are those set up for newly established contractors where much of the risk is removed. Consultants could be on call to provide advice. Easy contract terms may be available such as cost-plus or many of the equipment and materials provided by the client. Indicative rates may be provided or the total budget made known in advance. Another option may be to provide a bill of quantities with rates and invite each contractor to bid a certain percentage above or below. The type of “greenhouse” should depend on the level of development of the local construction industry. Airtight greenhouse (windows closed) contracts with rates fully fixed could be provided at early stages and then gradually opened up to full financial competition once the industry approaches maturity.

Technical competitive tendering similar to that used to procure consultants is another option. Andreski & Byabato [12] present a method developed in Iringa Region, Tanzania in the early 1990s. Here all contractors or entrepreneurs interested in moving into the business in the region were requested to express interest in the Regional Engineers road maintenance program. Compulsory training was provided on how to carry out the works and prepare tenders. Short lists were then drawn up and contractors invited to submit

technical proposals based on a priced bill of quantities. The technical proposals were then marked according to pre-published criteria and the technically best chosen. This had the advantage of ensuring contractors paid full attention to the training and prevented them from submitting unrealistically low bids.

Similar to the “greenhouse” concept is to allow “**high risk tendering**” and management of contracts. This may include reduced or no bonding, large advances with easy repayment terms, fast track payments, short listing of contractors thus reducing competition, price controlled or internet tendering. These types of contracts throw a lot of the risk on the client and even the individuals managing such tenders. Hence the client project managers will need the full support of their superiors and such techniques should be included in policy documents. For a well developed industry this may be expensive, but for an emerging industry it would accelerate its development and hence avoid many costly failed contracts.

Capital is a major constraint for newly emerging contractors. Banks in developing countries are notoriously risk averse and particularly reluctant to provide credit to what they perceive as high risk industries such as construction. **Enhanced credit availability** is one way around this problem. It may be necessary for the client or development partners to provide guarantees to local banks, thus removing or sharing the risk. They could also subsidize interest rates thus reducing them to levels affordable by contractors. Often collateral at high percentage rates is demanded and this could also be reduced if third parties are prepared to take some of the risk. If good cooperative local banks are difficult to find, other vehicles can be found such as Tanzania’s Construction Industry Development Fund.

Appropriate standard specifications should be included in the contract to suit the emerging local industry. They may include specifications allowing for local products. Specifications may also be simplified for the smaller contracts thus easing complexities for smaller firms and those that imply use of sophisticated imported equipment should be avoided.

Local entrepreneurs often produce **innovative local products**. These may include items such as wood stave culverts, bamboo reinforced concrete pavement or locally manufactured rollers and trailers. Local councils are frequently very conservative in regard to such innovations and prefer what they perceive as the “tried and tested” but more expensive foreign technology like Armco pipes. It is important that Government policies promote the local industry and also that these policies are fully disseminated at all levels.

Some countries remove **subsidies to foreign firms or create advantages for local contractors**. Often Development Partners insist that local taxes such as import duties are not applied to their credits or grants. This means that large foreign companies can import new equipment without paying duty whereas the smaller local companies are offering to provide their services having already purchased duty paid equipment. This creates a big advantage to foreign companies particularly for the larger contracts. It would be better if the playing field was levelled by all parties paying the same level of tax. Alternatively, barriers can be placed on foreign firms. This could include high registrations fees or extra taxes on imported equipment. A domestic preference of around 5 to 15% can also be included in tender documents. Another advantage may be to require foreign contractors to subcontract a percentage of their contract to local firms.

The Development Team Model. In this model, the aspects of the work are packaged into the four basic functional components: construction management, materials management, materials supply, and the works. The work is contracted out to a small-scale contractor, materials management and supply is contracted out on a fee-basis to a materials manager, and construction management is contracted out on a fee-basis to a construction manager. The materials manager and construction manager may be either consulting firms or established contractors. They make up the development team and provide the necessary support to emerging contractors. The uniqueness of the model is that it combines contract packaging (unbundling); on the job hand holding; and provision of support in resource mobilization for the emerging contractors.

3.5. Monitoring and Control

The purpose of monitoring is to exert control, learn lessons and improve the system over time. There will be two types of monitoring. The first will monitor key milestones in the transformation process treating it as a project using bar charts such as shown in figure 3 and critical path methods and other standard project management techniques. The second type will monitor the results or impact of the transformation once it is complete over a longer period using **project cycle management methods**[13].

Ideally, the impact monitoring should be part of an overall monitoring system of the sector as a whole, and much of the information may already be available from a Road Maintenance Management System. The purpose of this transformation is to improve efficiency of delivery of maintenance services and will not necessarily improve the effectiveness of maintenance i.e. are the right roads being maintained to appropriate standards. Key relevant indicators may include:

- ❖ Road Asset - A standard method of calculating this is given by Road Liaison Group, 2005 and a simplified method by Andreski [14]
- ❖ Unit maintenance costs for selected key activities
- ❖ Overall value and numbers of contracts performed grouped by contractor class and contract value
- ❖ Timeliness of contract procurements and payments
- ❖ Volume of force account works being carried out in terms of expenditure and coverage of network
- ❖ The number of bidders for contracts

An assessment of the status should be made every year, preferably by an independent agency. Full monitoring every year of each indicator over the entire network is likely to be impractical and statistical sampling techniques will be required. In remote and lightly trafficked areas a rolling 3 or 5 year survey program may be more appropriate.

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