COMMERCIALISATION OF ROAD MAINTENANCE IN THE WESTERN REGION OF THE NORTHERN PROVINCE: A CASE STUDY

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BACKGROUND

The identified need

As far back as 1996 the Department of Public Works of the Northern Province embarked on a business process re-engineering initiative. One of the cornerstones of this initiative was commercialisation, with the objective of improved service delivery.

Change was necessary because of the rise in personnel costs as a percentage of the total budget on the one hand, and the yearly diminishing budget allocation (in real terms) for road maintenance work.

Production rates achieved were low, far below those achieved by private sector contractors. This resulted in an unacceptable high unit cost for the maintenance work done.

A solution had to be found to improve the service delivery of the Northern Province Department of Public Works.

The action decision

With the assistance of the Department of Public Service and Administration, as well as from representatives of the Department of Public Works and Services of New South Wales in Australia, a normative framework for improved service delivery was prepared. This framework recommended that maintenance services within the department be commercialised. Commercialisation is defined as "To become businesslike within government". The objectives with commercialisation are:

- Improvement of the quality of the service offered
- Increased productivity of the work force
- A reduction in unit costs.

With this framework as basis the Department of Public Works in the Northern Province appointed a team of consultants to assist with the processes of Outsourcing and Commercialisation. The consultants were funded by the British Department of International Development (DFID).

This paper provides an overview of the work done by the consulting team and the results achieved to date.

IMPLEMENTATION OF THE COMMERCIALISATION PROCESS

Implementation programme

The project started off with Phase 1 of the proposed commercialisation process. The phases of commercialisation are as follows:

Phase 1, consisting of:

- Theoretical and practical training
- Compilation of a pilot business plan
- Installation of the costing system

Phase 2, consisting of:

- Operation of business units on commercial principles
- Gaining practical project management experience

Phase 3, consisting of:

- Transfer of maintenance units to the private sector as small business enterprises
- Assisting these units to be profitable
- Reduce maintenance costs to the department.

The project was implemented in one of the seven maintenance regions of the Province, the Western Region, as a pilot project. It is intended that Phase II will continue soon, seen in the light of the success achieved with Phase I of the project.

Phase 1 of the commercialisation project started in September 2000, and was completed in February 2001. The implementation programme is shown in Appendix A.

Communication with staff to be involved in the process

Communicating the objectives and process of the commercialisation exercise to staff was considered important, not only to win their support for the initiative, but also to obtain their input. A number of communication meetings were, therefore, held with the employees in the various districts. Appendix B shows a typical agenda for these meetings. Of interest is that the total meeting had to be translated into one or two of the locally spoken languages. Also important to note is the nature and details of the concerns of the workforce when introduced to the process of commercialisation. Appendix C provides some of the questions asked. Providing answers to these questions was regarded as one of the most important outputs of the commercialisation process.

Final outcome

The expected outcome of the commercialisation process will either be the transfer of maintenance units to the private sector as SMME's after a period of mentorship and support or retaining maintenance as an efficient and cost-competitive service within government.

CLASSROOM TRAINING

Approach

Classroom training was kept to an absolute minimum due to the fact that the departmental employees are not used to spending time in a classroom environment. They are more comfortable in their work situation, in the road or in the field.

The perception further exists that staff can be prepared to execute their functions by means of theoretical training only. Although theoretical training has much value, the value of practical, on-the–job training should not be under-estimated.

Project management course

Two project management courses, each with a duration of four days, were conducted at the Potgietersrus Regional Office. Participation in these courses was excellent and it was exciting to observe the enthusiasm with which the participants took part in the work-study groups.

The practical examples and exercises used were taken from the road maintenance industry, and were therefore directly applicable to the work situation of the participants. During the courses it became apparent that common project management principles, such as defining project teams and tasks, planning of maintenance and monitoring of implementation were not known, nor the application thereof in the every day working environment.

Course Content

The course content was compiled by RBPM (Pty) Ltd from experience gained during many years of contracting in the road construction and maintenance fields. The course content includes the following:

- The compilation of a business plan/zero based budget
- The setting of baseline targets
- How to compile a tender for an activity
- How to determine the production that can be achieved per day
- To set up team configurations which can achieve the required production
- The planning of the works to be done
- The difference between the yearly, monthly, weekly and daily programmes and their specific purposes
- The costing of maintenance operations, and comparison to a set of baseline targets
- How to achieve the baseline quality requirement for any activity.

Each participant was issued a project management course manual that contains the course material, the examples as well as the blank forms to be used in practice.

Course attendance

The first project management course was conducted for the senior officials in the Western Region during October 2000. 21 candidates attended this course. The second project management course started just after the first one, and was completed by the end of October 2000. 19 Junior employees attended this course.

Each course participant was requested to evaluate the course in general, the presenter as well as the course content and the manual. The general consensus was that the project management course contributed significantly to their understanding of working in a commercial environment.

Elementary survey and measurement

Measurement and elementary survey forms an integral part of any road maintenance activity. It is on this subject where most foremen/supervisors had difficulty with the calculations as well as the understanding of linear measurement, area and volume measurements.

Course content

The content of the course was tailored to the needs of the course participants, most of who had seldom experienced the need to do calculations or measurements in order to monitor production. The following aspects were covered:

- Simple calculator calculations
- The use of a tape measure
- Linear measurement
- Area measurements
- Volume measurements.

Course attendance

A four-day course conducted early in November 2000 was attended by 34 candidates. Due to the large difference in the educational standard of the course participants 13 of the 34 participants only needed to attend the first and last day.

Daily reports and operational costing

All commercialised operations require that daily reports for each activity be compiled. These daily reports are fed into a computerised costing system to establish the profit or loss for the daily operation, or to establish whether the baseline targets, as set during the tender, are met. The course explained the compilation of the daily reports, i.e. the listing of the resources used and the measurement of production achieved with those resources.

In order to understand the computerised system these daily reports were used to manually calculate the profit or loss for a daily operation.

THE BUSINESS PLAN COMPILATION

The business plan was compiled for a six-month period, i.e. from the 1st October 2000 to the 31st March 2001 (the remainder of the financial year). This approach followed differed from the historic method of compiling a budget, which is discussed in the next section.

Historic approach

Historically budgets were compiled by a few senior officials with very little or no consideration of the work required to be done. Employees responsible for the execution of the work were not part of the budgeting process, and could therefore not take ownership of the strategies followed and decisions taken.

Historically budgets are resource driven, meaning that:

- Provision is made for the employment cost of the current staff
- Provision is made for the servicing and repair of plant allocated to the region
- Provision for materials to be bought is based on the previous year's expenditure with an allowance for inflation.

The quantification of work to be executed in that particular year did not influence the budget. The budget did also not make provision for overhead costs such as facility costs, services, etc, as provision for these was made in a different department's budget.

Commercial approach

The commercial business plan is a zero based budget. It is driven by the quantity of work to be done, rather than the cost of maintaining current resources. The following steps were followed in order to achieve the six months commercial business plan:

Business plan workshop

The business plan workshop was held early in November 2000 at the Potgietersrus regional offices.

The agenda for the business plan workshop was as follows:

Day 1	Regional overheads compilation
Day 2	General decisions
Day 3	Tender for blading, formation forming, bush clearing and drainage maintenance
Day 4	Tender for pothole repair, crack sealing and edge break repairs
Day 5	Tender for shoulder re-shaping, signboard replacement and camp overhead costs (P&G costs)

Only senior officials of the region attended Days 1 and 2. On Days 3, 4 and 5 representatives from the different teams/camps participated in the tendering process and were party to the decision making process deciding on the optimum team configuration and daily production targets.

During the staff communication meeting staff selected representatives from the different operating camps/teams to participate on their behalf in the business plan workshop.

Priority list

The objective of preparing the priority list is to quantify and prioritise the work to be done during the period under consideration.

In preparing the priority list a distinction was made between maintenance actions focused on gravel roads and those focused on surfaced roads. Roads were grouped per operating camp. The Principle Roadworks Foremen of the northern and southern districts/camps did this work with the assistance of some of the foremen. This was a major task, as some of the work had to be measured physically, while the extent of other tasks to be performed was estimated.

It must be appreciated that this had been a first attempt to compile such a business plan and it cannot be expected to be very accurate. Each time this exercise is repeated the information contained in the priority list will increase in accuracy. Also the Principle Roadworks Foremen will

during the course of their day-to-day operation gather more accurate information for the preparation of the next priority list.

Bill of quantities

The bill of quantities is aimed at quantifying maintenance work to be done. It summarises maintenance projects as described by means of the priority list. The bill of quantities is prepared per camp, then summarised for the northern and southern districts and then summarised for the total region.

Each work activity is itemised and listed with the amount of work planned or prioritised. The unit costs for these items are determined and added to the bill from which the total cost of each item is determined. This approach has the advantage that the maintenance work to be executed can be sub-divided per region, area or camp. Once all regions have a business plan the bill of quantities can also be summarised for the entire province.

Calculation of regional overhead costs

The regional or company overhead costs are those costs that are generated by the management of the region or company when planning and coordinating the work activities and providing assistance to the operational teams.

Items to be included in the overheads are amongst others:

- Management staff costs
- Motor vehicle costs
- Other travel costs
- Office equipment rental costs
- The rental of premises
- Printing and stationery costs
- Utilities costs
- Security costs
- Regional training costs.

These overhead costs, therefore, relates to the costs that cannot be directly associated with an operation or activity. In a commercial/company situation these costs have to be kept as low as possible because profit will only be generated once the total overhead costs have been paid for.

Compile general strategy

The general strategy consists of decisions that are applicable to the entire region. It is for this reason that these decisions are generally important and can only be made by the management team of the region. Wrong decisions will financially adversely affect the total region.

The following aspects have been addressed:

- The number of productive working days for the business plan period
- The total staff cost per day, inclusive of the social/hidden cost
- The plant/vehicle rental cost per day
- The fuel consumption of plant and vehicles per day

- The material cost per unit, inclusive of wastage and any expected price increases during the business plan period
- The utilisation rate expected for plant and equipment
- The expected mechanical availability rate for plant and equipment.

Each of the above items has a major effect on the financial well being of the region.

Camp preliminary and general (P&G) costs

The camp P&G cost is similar in nature to the regional overhead cost. This is cost associated with the 2nd tier of management directly responsible for the operational teams and the meeting of their baseline targets. P&G cost is calculated per productive working day.

Unit costs

From the general strategy the daily costs for staff and plant have been determined. During the business plan workshop the achievable daily production rates for each team has been agreed upon. In the case of plant the daily achievable production has to be adjusted by either an utilisation factor or mechanical availability factor or both. The daily material requirements in line with the daily production have to be calculated and a cost has to be attached to it.

The above adds up to the total daily cost for the team. This daily cost divided by the adjusted daily production gives the unit cost.

Priced bill of quantities

The tendered/calculated unit costs are transferred to the bill of quantities in order to determine the total cost per activity for the business plan period. Adding the costs for all the activities will produce the total maintenance cost for the business plan period for the region.

Refinement of total cost

The total maintenance cost determined for the business plan period exceeded the amount of money available for the business plan period. Therefore, the total cost had to be adjusted until meeting the available funds. This was done as follows:

- The prioritised/planned amount of work had to be reduced
- The productive working days/hours had to be increased
- Cheaper alternatives for the material purchases had to be found
- The team configurations had to be changed
- The working methodology had to be changed in order to increase the daily production, resulting in a lower unit cost
- Utilised resources would have to be shared amongst camps.

The above are important management considerations and may result in unpopular decisions. The ideal is that by properly planning maintenance work, future budget levels will be influenced. The process of streamlining the planning/budgeting process in order to achieve realistic business plans will improve over a number of years.

Refinement of Total Resources required

After adjusting the costs to be in line with the available funds the available resources had to be refined. In all incidents the costs of the available resources as outlined in the officially approved organisation organogram exceeded the available funding and the amount of work that could be executed with those funds.

PRACTICAL TRAINING AND TEST SECTIONS

The objective of the test sections are to demonstrate to the maintenance teams that the baseline targets set for each activity during the business plan workshop are reasonable and can be practically achieved.

In order to fully achieve the objective, the test sections have to be repeated whenever materials change, the team configuration changes or when constant losses are being made.

An ongoing improvement in the method of construction is required in any operation and this improvement can be achieved by repeating the test section process.

A number of tests were conducted, with some of the results shown in table below. Noteworthy is the significant difference between previously achieved production and unit costs and those illustrated to be realistic. Maintenance teams have generally been able to achieve the rates demonstrated during the test sections, in practice.

Table: Comparison of rates achieved after commercialisation

Maintenance item	Unit of measurement	Historic rate	Rate now achieved
Paved roads			
Pothole repair	m^3 /day	1,4	6,6
Unpaved roads			
Blading	Blade.km	14	64
General			
Cleaning of culverts	Sets/day	5	11
Road reserve bush clearing (light)	m^2 /day	7 200	15 000

The following maintenance activities were addressed:

- Surfaced Road - Crack Seal
- Surfaced Road - Pothole Repair
- Surfaced Road - Edge Break
- Surfaced Road - Shoulder Re-Form
- Surfaced Road - Drainage
- Surfaced Road - Road Reserve Bush Clear
- Gravel Road - Blading
- Gravel Road - Drainage
- Gravel Road - Reserve
- Gravel Road - Re-shaping of Wearing Course

COSTING SYSTEM

Overview

The costing system is typical of the costing systems used extensively on a day-to-day basis by contractors working with the objective of making a profit on a daily basis. This costing system cannot replace the financial accounting system. It is supplementary to the financial accounting system assisting day-to-day decision making by line managers. This costing system will provide to managers the information on how the operations are doing, i.e. is a profit or loss being made, and if so, where.

The baseline used in the costing system is the baseline unit cost and production decided upon during the Business Plan Workshop.

Configuring and installing cost system

The baseline costs and production rates were fed into the costing system per activity. The costing system refers to this as the allowed cost.

The costing system was installed on three computers in the Western Region i.e. one at the Head Office of the Western Region and one at each of the Northern and Southern Districts.

Training

Computer operators who enter the daily supervisor returns into the system were trained to do this. Daily supervisors' returns have to be accurate, the principle of "garbage in garbage out" applies.

Reports

The main report to be produced by the costing system is a profit or loss statement per activity for any period (day, week, month, etc). This information will be used during Phase 2 of the commercialisation process in the Western Region as a basis for discussion in the monthly management meetings and/or in the weekly planning and cost meetings.

CONCLUSION

The Department of Public Works of the Northern Province experienced the typical problems of inefficiency characterising most operations that are not profit driven. It was decided to implement a commercialisation process, which was defined as "becoming business like within government". The expected outcome of the commercialisation process will either be the transfer of maintenance units to the private sector as SMME's after a period of mentorship and support or retaining maintenance as an efficient and cost-competitive service within government.

The paper provided an overview of the implementation programme followed, communication with staff, classroom training provided, the compilation of a business plan for maintenance, practical training and test sections and the costing system implemented.

The results achieved to date clearly demonstrate the benefits of a commercialised approach towards maintenance, and it is believed that a significant improvement in efficiency can be expected in most spheres of government if the commercialisation process is implemented.

ACKNOWLEDGEMENTS

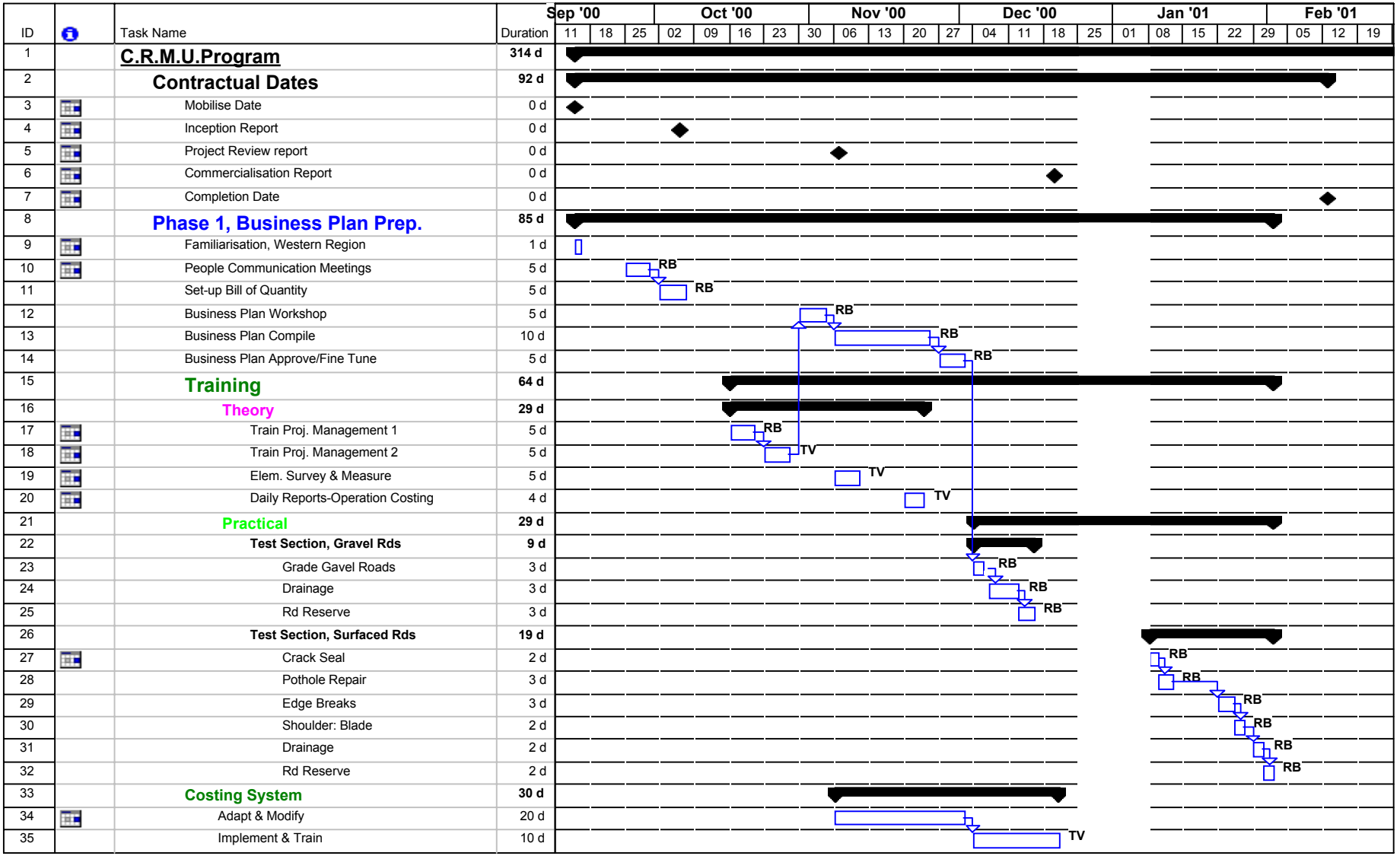
The authors wish to acknowledge the following people and organisations that assisted in the successful completion of Phase 1 of the commercialisation process in the Western Region:

- The Project Team of the Northern Province, Department of Public Works
- The *R-a-shoma* Colleagues (co-consultants)
- The RBPM Team
- The Western Region Management team
- All employees in the Western Region
- Mr. Andries Pienaar, Senior Project Manager: Western Region – a special acknowledge-ment, for taking ownership and driving the process

Without their assistance and co-operation the project could not have been completed within the short period of five months and would have been far less successful.

The contribution of the U K Department for International Development (DFID), which funded the project, is also gratefully acknowledged.

APPENDIX A: IMPLEMENTATION PROGRAMME



ID	Task Name	Duration
1	**C.R.M.U.Program**	**314 d**
2	**Contractual Dates**	**92 d**
3	Mobilise Date	0 d
4	Inception Report	0 d
5	Project Review report	0 d
6	Commercialisation Report	0 d
7	Completion Date	0 d
8	**Phase 1, Business Plan Prep.**	**85 d**
9	Familiarisation, Western Region	1 d
10	People Communication Meetings	5 d
11	Set-up Bill of Quantity	5 d
12	Business Plan Workshop	5 d
13	Business Plan Compile	10 d
14	Business Plan Approve/Fine Tune	5 d
15	**Training**	**64 d**
16	**Theory**	**29 d**
17	Train Proj. Management 1	5 d
18	Train Proj. Management 2	5 d
19	Elem. Survey & Measure	5 d
20	Daily Reports-Operation Costing	4 d
21	**Practical**	**29 d**
22	**Test Section, Gravel Rds**	**9 d**
23	Grade Gavel Roads	3 d
24	Drainage	3 d
25	Rd Reserve	3 d
26	**Test Section, Surfaced Rds**	**19 d**
27	Crack Seal	2 d
28	Pothole Repair	3 d
29	Edge Breaks	3 d
30	Shoulder: Blade	2 d
31	Drainage	2 d
32	Rd Reserve	2 d
33	**Costing System**	**30 d**
34	Adapt & Modify	20 d
35	Implement & Train	10 d

APPENDIX B: TYPICAL AGENDA FOR MEETING WITH PERSONNEL

Introduction

World and Africa changes

Why Commercialisation and Privatisation?

What is Commercialisation?

The Process – 4 month until 13 Feb ’01

People Communication Meeting

Training:

Project Management

Measurement & Survey

Costing

Business Plan:

Overhead costs

Bill of Quantities

Tender all Activities

Practical Training:

Test Sections: All activities

Computerised Costing System

Any questions?

APPENDIX C: CONCERNS OF STAFF INTRODUCED TO COMMERCIALI-SATION

- I am 65 years old – 3 month to go – what now?
- Will pension be paid out before commercialisation?
- Will pension be paid out or transferred to another fund?
- Unions do not agree with Privatisation
- Can we belong to unions after Commercialisation?
- Today is the 3rd step – as far as pensions are concerned – will we not be crooked out of our money again?
- What about accumulated leave?
- Why is NEHAWU not present at the meeting?
- Since 16 June 1953 – TPA – 1961 – Works – no thank you – Blue card.
- Will we get all the money – pension?
- What will happen to workers' pensions?
- Why did you start at Western Region?
- Why change from present situation to a small-scale contractor?
- If less people are needed to do a job, what happens to others?
- Government must pay our money before we discuss anything further.
- Why are we changing?
- Take Telkom people as an example, what will happen after 3 years?
- Why does government want to outsource, why don't they introduce a proper internal management system?
- Why are the Union representatives not present?
- Will there be a need for women?
- Why does our manager not go for training in order to train us?
- Why not a neutral person to lead us through commercialisation?
- Why don't you employ unemployed and do the maintenance as a contractor?
- You require two people from each camp to prepare business plans– what criteria will be used to select them?
- The MEC should see and approve the changes Mr Beger intends introducing.
- Can we not reserve the questions for the next meeting when the unions are present?
- If we fail at commercialisation, what will happen?
- Once we have learned to work like contractors, must we sign forms?
- Why is it not happening in other regions?
- How long is the period of commercialisation?
- We requested the presence of the MEC and our unions – no one has come.

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Mr Rolf Beger (pronounced Beeger) was born in Dresden in Germany during the Second World War. Dresden was virtually destroyed by bombs during the war whilst he was a young boy still living there.

At the age of 12 he and his family emigrated to South Africa where he grew up on a farm in Sasolburg.

In 1963 he obtained a NHD and started working for a Civil Engineering Consulting firm. Two years later he joined a construction company. The original Ben Schoeman Highway was one of his projects.

During 1979 he was transferred to Namibia and in 1982 was promoted to Managing Director of the company. He served as Managing Director of various companies in Namibia and South Africa.

In 1988 he founded the company RB Project Management and still serves as Managing Director on the board of directors. The company specialises in Project Management, the training and development of small contractors (SMME's) and Commercialisation of Government Departments.

Mr Beger is a South African citizen and speaks German, Zulu, English and Afrikaans. He is married to Ellen and has two children. He is also an outdoor fanatic.