



Manual Tender & Pricing Labour-Based Technology for Rural Road Works



**Don Bosco Foundation
Training Center in Comoro**

Training Manual

**Tender & Pricing
for
Labour-Based Road
Construction**

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Manual, Tender and Pricing for Labour-based Road Construction

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Introduction

The *Training Manual of “Tender process and Pricing for Labour-Based Road Construction* is developed for training purpose for the ERA and MPW/R4D bid process. The manual consists of guidelines for preparation and submission of a bid document and for estimating cost for the labour based road works, accompanied by an example of how to calculate the contract cost and a sample of a filled bid document. The training manual consist of two chapters:

Chapter 1: Tender process

Chapter 2: Pricing for rural road construction using Labour-Based technology.

The tendering process chapter (Chapter 1) has been developed in addition to the training manual developed by the ERA-IADE for the Unit Competency “Plan and prepare your bid for tender”. The tendering process part is prepared specifically for the tender of the rural road work using MPW/R4D tendering process and bidding document.

Chapter 1: Tender Process

1.1 The Team in the construction and roles of the team

Training module on “The team in the construction and roles of the team” session has been developed and in use by IADE for Business Management training. This training material will not be changed and be used for this session.

1.2 General tender process

Procurement of civil works contracts usually follow procedures and processes that are clearly defined by the client. These processes vary from client to client.

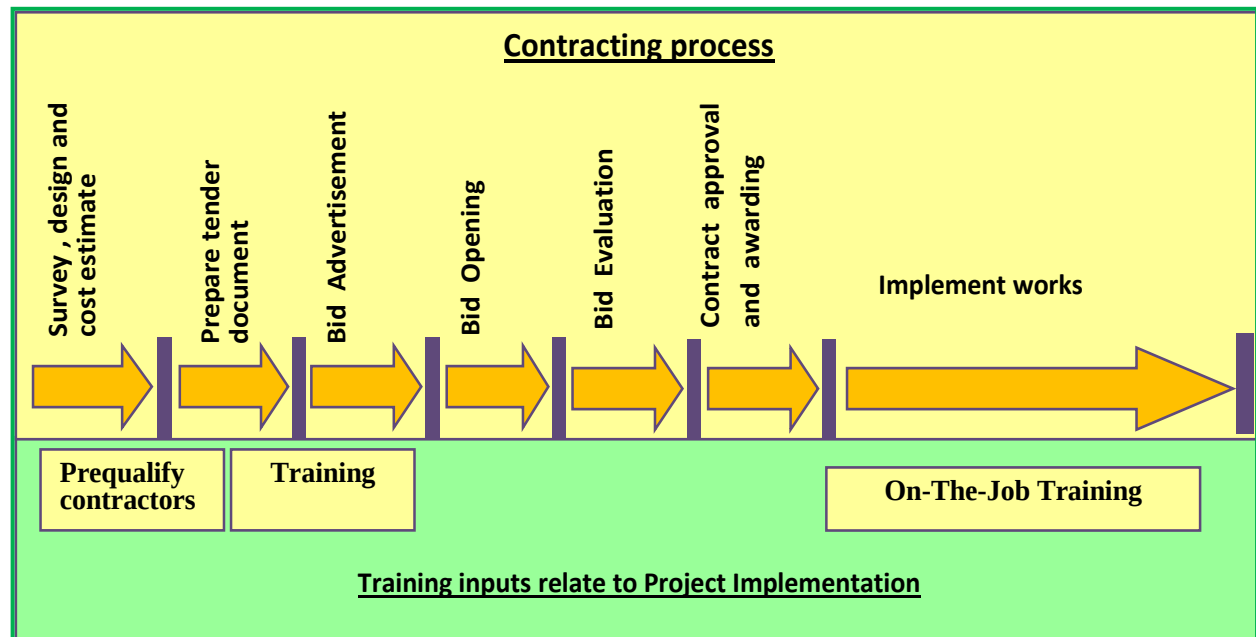
There are also different types of bid processes depending on the volume of the works. International Competitive Bidding (ICB) is used for major works whilst Local Competitive Bidding (LCB) usually is used for minor works, such as rural road works contracts, which are generally limited in scope and therefore also suitable to be carried out by local contractors.

This Chapter describes Local Competitive Bidding procedures used by the Government (MPW/R4D) for procurement of rural road works contracts in Timor-Leste. Key activities include (i) advertisement of bid (ii) bid preparation and submission (iii) bid evaluation and (iv) contracts award.

The LCB for civil works contracts implies that (i) official bid announcement needs to be carried out. This involve advertisement of the bidding in local newspaper and local radio, and (ii) any qualified bidder may participate in the bidding process.

The client, in our case the MPW/R4D, must form a bid committee that shall be involved throughout the bid process, from bid advertisement to recommending contract awarding. The bid committee should consist of 3 or 5 members and should be chaired by a senior government official. The bid committee will make recommendations for approval of contract.

The diagrams below shows the general bidding process. The diagram also shows training that is offered to local civil works contractors by ERA and MPW/R4D related to the bidding process and works implementation.



The approach taken by the ERA and MPW/R4D is unusual in the sense that very often there is no training linked to a government bid process. Contractors are left on their own. Luckily, ERA and MPW/R4D are providing training and guidance, and regard this as a win-win situation as it is expected that bids will be better prepared and ultimately execution of work contracts improved.

1.3 Pre-qualification

It is common that the client undertakes a process of pre-qualification of contractors for the implementation of their projects. This is done in order to ensure that bids are obtained from companies that are qualified to carry out the works as requested in the bidding documents, increasing the probability that works are carried out on time and to high quality standards once a contract has been awarded.

MPW/R4D does not plan to pre-qualify contractors for rural road works. However MPW is in the process of classifying civil works contractors in different categories based on company capacity and work experiences. The classification categories are A, B1, B2 and C, where A is the highest category including the most experiences and well resourced companies in Timor-Leste. Note that only companies that have been registered and classified by MPW will be allowed to participate in any bid process for works. It is therefore imperative that you register and receive a classification for your company!

However, even though companies may be classified it has been decided that training is necessary to improve works implementation. Training relates to management of labour-based works operations as well as better contract management and improved bid

submissions in the first place. The training is provided through the ERA Project, delivered in collaboration with Don Bosco and IADE.

Whilst MPW/R4D is offering companies to participate in the ERA training, it is essential that their staff has the capacity to absorb and understand what is being taught in the training and that the company has sufficient capacity in terms of capital and other resources to implement the works. This implies that the bidders need to provide the Client with evidence showing that their staff has (i) minimum required education level (High school diploma for supervisor and engineer degree for engineer position) and (ii) can show past experience in carrying out similar type of works. (iii) staff need to pass entry test that ensuring the staff has a minimum understanding to follow the course. Generally in order to implement a labour-based road contract the technical staff required for each company should be 1 site engineer and a minimum 2 supervisors.

1.4 Training

The selected companies will participate in training provided by the ERA Project before tendering for the MPW/R4D road works. The training will include (i) technical training for the labour-based road construction approach, (ii) contract management and (iii) business management training. The training has thus been divided into three distinct units:

- ✓ Technical training in Labour-based Technology (LBT). Labour-based, equipment supported methods for rural road rehabilitation and maintenance training is provided to road supervisors and engineers of the selected companies.
- ✓ Contract management training is provided to the directors and engineers of the selected companies.
- ✓ Business management training is provided to directors of the selected companies.

The overall training programme offered to contractor's staff including, the company's director, the company engineer and supervisors. Because of their different backgrounds and their different roles in the construction project they require different types of training. Whilst the supervisors need more thorough training focusing on technical aspects the engineer and director also need management training. The training is therefore tailored to the needs of each category of staff.

The bar chart below shows the type and duration of training for the contractor's different staff.

Staff/type of training		WEEKS											
		Advertisement	1	2	3	4	5	6	7	8	9		
Supervisor (2-3)	LBT Technical training												
	Practical training												
Engineer (1)	LBT Technical training												
	Contracts management												
	Practical training												
Director (1)	Contracts management												
	Business management												
													Tender

1.5 Bid Process

1.5.1 Advertisement of bid

The tender process officially starts with the bid announcement, which provides key information about the bidding process.

The LCB for civil works contracts implies (i) official bid announcement need to be carried out. This involve advertisement of the bidding in local newspaper and local radio (ii) Advertisement shall be done in the local language and posted in each district and sub district.

Qualified bidders may participate in the bidding process. To avoid disappointment and wastage of time, carefully read the notice to ensure that your company indeed is qualified to participate in the bid.

1.5.2 Pre-bid meeting, site visit and request for clarifications

Once the tender has been officially launched, the client usually invites interested contractors to a pre-bid meeting. The client will in this meeting provide more information about the tender. This meeting is normally obligatory, ie you will need to prove that you participated in this meeting in your tender submission.

The client will organize an official site visit, where participation is compulsory. The site visit will provide an opportunity to ask questions in the field. It is however expected that the bidders will spend more time in the field to familiarize themselves with the local conditions and explore availability of labour and materials needed for construction.

Contractors may request clarifications from the client but only until the "deadline for clarifications", which is clearly stated in the bid document. The client will respond to questions copied to all bidders to ensure that everyone has the same information.

1.5.3 Submission and Bid Opening

Bidders shall submit their bids before the closing time and date as set in the bidding document and advertisement. **Bids received after the deadline will be automatically rejected and not processed any further!** All bids are opened by a bid opening committee in the bid opening meeting on the date and time indicated in the bid document, usually in the presence of bidders who wish to participate. The bid opening committee in this meeting:

- ✓ opens the sealed envelopes with the bids and decides whether a particular submission is accepted (ie includes both technical and commercial proposal, is properly signed, etc) or if it is rejected for what reasons.
- ✓ reads out and record total bid price and validity in a bid opening protocol which when all bids have been recorded is signed by all members.
- ✓ Takes attendance of participants and bid opening committee who attend in the bid opening.

1.5.4 Bid evaluation

The bid evaluation process should be carried out immediately after the bid opening. It is important to bear in mind that the bid evaluation is an internal and closed exercise in which all discussions are confidential, in contrast to the bid opening session. That means the bid evaluation is strictly for the evaluation committee and that no information about the final recommendation of award shall be disclosed until the bid evaluation protocol has been approved by the MPW Procurement section

Before the bid evaluation committee convenes its meeting, the Engineer will need to carry out a series of preparatory activities. The most important duties before conducting the bid evaluation are (a) to prepare the Engineer's Estimate (b) check the bids for any arithmetic errors in the calculation of the total bid values.

The bid committee can start to evaluate the bids once the preparatory work has been completed. The bid evaluation is carried out in two parts: (i) technical evaluation. The evaluation committee checks the bids to verify that the bid is technically compliant and that all documents that were requested have been properly completed and included in the bid submission, comparing with the check-list that was included in Volume 3 of the bid document. Bids will be scored on their technical merits (ii) Financial evaluation. The bid evaluation committee evaluates the commercial proposal. The evaluation will compare bid price to the engineer's estimate, analyze bidders proposed construction period, check unit price break down, verify bid security (N/A in the MPW/R4D project). Each bid will be scored on its financial merits. The bidders final score is a combination of the technical and financial score. A sample of scoring sheets for the technical and financial evaluation is attached in Annex 5.

The bids shall be ranked according to the combined scores given for the technical and financial evaluations. Once the bids are ranked the Bid Evaluation committee will recommend the highest ranked bid for contract award and will prepare a recommendation letter, which will be included in the bid evaluation report that will be submitted to MPW Procurement for the contract approval. If for any reason the most successful bidder

decides not to accept the contract, the evaluation committee has already ranked the second best bidder who will then be awarded the contract.

It should be noted that the bid evaluation committee shall have the authority to reject any or all bids. Furthermore the committee shall not be obliged to choose the lowest bid (as it bids are evaluated on both technical and financial merits).

1.5.5 Contract approval and Contract award

When the bid evaluation process has been completed, the bid committee will recommend the contract award to the client's procurement unit. The chair of the bid evaluation committee will prepare the minute of the bid evaluation and submit the bid evaluation report to Procurement for final approval. The document to be submitted to MPW Procurement consists of:

- ✓ Bid opening protocol
- ✓ Minute of bid opening
- ✓ Minute of bid evaluation
- ✓ Recommendation of contract award
- ✓ Set of bid evaluation
- ✓ Request for contract approval to Procurement

Having received final approval from MPW Procurement, the contract is awarded by the project to the most successful bidder. The project should notify the Contractor immediately after obtaining the Procurement approval, thereby allowing the Contractor to mobilize as soon as possible. The contractor is indeed expected to mobilize immediately upon receiving the notification of award. In other words, the contractor is expected to commence works even before a contract agreement has been signed. When issuing a contract agreement, the following documents should be included:

- ✓ The signed Contract Agreement;
- ✓ Contract Data;
- ✓ Conditions of Contract;
- ✓ Bid documents (including all schedules);
- ✓ Bill of Quantity include unit rates breakdown;
- ✓ Drawings as approved by Directorate of Roads; and
- ✓ Contractor's bid.

The preparation of the contract is based on the above documents, issued during the bidding process. No changes should be made to the conditions of contract or other submitted contents, as this is the basis for the contractor's commitment. However note that the corrected price in the Bill of Quantity, and consequently the corrected total contract amount should be what is inserted in the agreement.

The contract is a very important document and serves as supporting evidence for any payments processed under the contract. The original contract should be kept securely in the project office until the works as defined in the contract have been completed including the defects and liability period.

Upon signing on the agreement, a performance guarantee of 2% of the total contract price is to be deposited with the client (this can vary between 2-5% depending on the client's policy). The performance security will be returned to the contractor after successful completion of work.

1.6 Bid documents (MPW/R4D bid document)

There are several of different types of bidding document for civil works construction contracts. The bidding document is being used by the MPW of Timor Leste comprises of three volumes as below:

Volume 1: Standard Documents

INSTRUCTION TO BIDDERS

- A. General
- B. Bidding documents
- C. Preparation of bids
- D. Submission of bids
- E. Bid opening and Evaluation
- F. Award of Contract

Volume 2: Specific Dada

- 1. Invitation to Bid (ITB)
- 2. Instruction
- 3. Bid Data
- 4. Contract Data
- 5. Bill of Quantities
- 6. Maps

Volume 3: Forms for submission

- 1. Bid submission Checklist
- 2. Technical Proposal
- 3. Financial proposal

1.6.1 Instructions to bidding document Volume 1 “Standard Documents”

The volume 1 bid document comprises of standard documents. This volume provides general instruction to bidders. The volume 1 gives general information of the bid, how to prepare and submit the bid, how the bids evaluation method is carried out and how the contract is awarded.

To avoid making mistake in preparing the bid all bidders need to understand and carefully read through the volume 1 before preparing the bid.

1.6.2 Instructions to bidding document Volume 2 “Specific Data”

Volume 2 bid document comprises of specific information for a particular bid. The following are the instruction of the volume 2 document:

- a. **Invitation for Bids:** provides the announcement to the public of works intended to be carried out for construction works with specific reference to the use of labour-based construction methods. The client engineer is responsible for preparing the information that should be including the Invitation for Bids.

The Invitation for Bids contains the most basic information relating to the works for which the Client wishes to engage a construction firm. The information in the bid announcement should include: scope of work, road length, location of the work, bid closing and opening date and time and where the bid to be submitted.

When: The Invitation for Bids should be prepared and announced only after all other bid documents have been prepared. If the procedures for local competitive bidding are applied, this announcement should also be advertised in local newspapers, local radio at least two weeks before the bid closing date.

- b. **Instructions to Bidders:** provides the basic rules and regulations for the bidding process. It describes in detail all the procedures for submitting a bid, as well as defining the terms on which the bids will be evaluated. The project engineer is responsible for preparing the bidding documents including the Instructions to Bidders.

The Instructions to Bidders form part of the bidding documents, and should always be provided when inviting for bids when applying the procedures for local competitive bidding.

When: Since the Instructions to Bidders form part of the bid documents, it needs to be completed and checked for its accuracy before announcement of bids. It must be approved by the project manager before advertising the bid.

- c. **Bid Data:** Instruction to bidders are standard documents which need no changes from one road works contract to another. They only contain general clauses, which relate to all road works. Any specific instruction for the bid should be included in the Bid Data. All bidders shall comply the Bid Data when preparing the bid document.

When: The Bid Data Form is prepared for every bid. The information in the Bid Data form should be completed together with other bidding document before advertising for bidding.

- d. **Contract Data:** The conditions of the contract is a standard document which does not change from one road works contract to another. Any specific conditions for the bid are referred to in the Contract Data. Contractors must comply with conditions referred to in the Contract Data during implementation of the contract.

When: The Contract Data Form is prepared for every contract as part of the contract bidding documents, and is also included in the final contract agreement.

- e. **Bill of Quantity:** forms the basis for cost estimating and pricing, as well as the breakdown of the major cost items in a works contract. Together with the Form of Bid, the BoQ provides (i) the price offered by the Bidder (ii) the detailed amounts of work expected from the Contractor for which the total price is based upon. The client engineer is responsible for preparing the Bill of Quantities after completing a detailed field survey and preparing the road condition assessment.

The following information should be entered by the client Engineer:

- ✓ **Description:** The Description of the activity should correspond to the standard description given to an item in the Technical Specifications.
- ✓ **Unit:** Always use the unit of measurement mentioned in the Technical Specifications.
- ✓ **Quantity:** Quantities are entered in totals for each activity, covering the entire contract. This information is obtained from the road condition assessment.

The remaining information is filled in by the Bidder:

- ✓ **Rate:** The unit rates are the most important information submitted by the bidder as these form the basis for the final contract value. Also, despite changes in quantities during works implementation, the unit rates remain unchanged.
- ✓ **Amount:** The amount is the product of the Quantity multiplied by the unit Rate for each activity.
- ✓ **Signature:** Finally, make sure that the BoQ is properly signed by the Bidder's authorised representative.

When: The Bill of Quantities is prepared for every road works contract, as part of the bidding documents.

1.6.3 Instructions to bid document Volume 3 “Forms for submission”

The volume 3 of bid document contains all formats to be filled by the bidders for submission of the bid. This volume is divided into three parts: (i) Bid submission Checklist, (ii) Technical Proposal and (iii) Financial proposal. The following are the instructions to the three parts of the volume 3 of the bid document.

- f. **Bid submission checklist.** Provides all information that the bidders need to fill. You need to make sure that all the forms and information listed in the checklist are filled and checked. Your bid can be rejected and not evaluated further if any information listed in this checklist has been left out, as your bid is not compliant. Form of the bid submission checklist is attached in Annex: 6

g. **Technical proposal:**

The technical proposal comprises of two parts: (i) Certificates to be submitted together with the bid and (ii) forms to be filled. The instructions to the technical proposal are detailed below:

- ✓ **All Certificates** listed in the table below need to be included in your bid document. The certificates from C1 to C4 in the table below shall be valid on the date of bid submission and the certificates listed from C5 to C7 shall also be

submitted together in your bid. If any of the required certificate has been left out your bid might be rejected or evaluation score shall not be given to that part. The table below lists the certificates to be submitted:

Technical proposal

Certificates		Validity	Notarized
C1	Licensa	Valid on the date of submission	Yes
C2	Ownership ('Para quem ...')	-	Yes
C3	Certidao de Dividas	Valid on the date of submission	Yes
C4	TIN	-	Yes
C5	Estatutos		
C6	Bank statements for past 6 months		
C7	Don Bosco Training Course certificate(s) *		

- ✓ **Forms to be filled:** There are a series of forms, T1 to T19, that the bidders need to fill and submit. If any of the form listed in below has been left out your bid might be rejected or evaluation score in that part shall not be given. Once you have filled all forms you can check the last column. . Forms to be filled and submitted are listed in the table below. A sample of completed forms is attached in Annex 5

Forms		
T1	Front cover	
T2	Bidder's information sheet	
T3	Written Power of Attorney (if tender is signed by other than Director)	
T4	Authority to obtain references from the bank	
T5	Records of attendance at the pre-bid training, site visit and meeting	
T6	Information regarding past or current litigation	
T7	List of completed construction contracts	
T8	List of current construction contracts	
T9	Statement of commercial capability	
T10	Organization chart	
T11	List of staff	
T12	CV of Director	
T13	CVs of Engineer/Supervisor (one CV per person)	

T14	Work programme	
T15	Statement of work management	
T16	Statement of equipment availability	
T17	Statement of material sourcing	
T18	Statement of local development	
T19	Agreement with the community (required only if a contract is awarded)	

Note: The form T3 “Written Power of Attorney”, must be completed and submitted if anyone besides the director signs the bid document. The director must authorize a company representative to sign the bid on his/her behalf. The authorization letter format of T3 shall be signed by the director of the company and submitted together with other forms.

1.6.4 Financial proposal:

There are 6 forms of the financial proposal range from F1 to F6 comprised in the volume 3 of the bid document. Two forms of F1 and F2 are contained in volume 2 of the bid document while forms F3 and F4 are contained in volume 3. Forms F1-F4 need to be filled by the bidders and submitted together with other forms. Any forms (F1-F4) is not filled or not submitted, your bid will not be compliance and shall not be considered for further evaluation. Once all the forms are filled the checklist shall be checked in the last column to ensure you have checked and your forms are filled. A sample of the form that filled is attached in Annex 5.

Form F5 is required to be filled when your bid has been selected for contract award. This form to be filled by a bank as a guarantee of your advance payment request. Sam as form F6 to be filled by a bank after you have been awarded of the contract as a guarantee of your work performance.

Below table are list of the forms to be filled and submitted

Financial proposal

Forms		
F1	Front cover	
F2	Bid form	
F3	Bill of Quantities (see Volume 2)	
F4	Breakdown of unit prices	
F5	Advance payment guarantee (required only if a contract is awarded)	
F6	Performance guarantee (required only if a contract is awarded)	

1.6.5 Signed bid document

Once all the forms in the volume 2 and volume 3 of the bid document are filled you need to sign on every page of your submission including: (i) documents to be signed in volume 1 of

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the bid document: Instructions to bidders, Conditions of contract, Specifications and (ii) documents to be signed in volume 2 of the bid document: Bid data, contract data and drawings.

You must prepare one original and 2 copies of all documents in your bid submission. The table below lists all documents to be signed in addition to the forms.

Signed documents

(3 of each; 1 must have original signatures on each page, 2 can have copied signatures on each page)

Volume 1 – Instructions to bidders, Conditions of contract, Specifications	
Volume 2 – Bid data, contract data, drawings	

Chapter 2: Pricing for Labour-based road construction work

2.1 Review rural road construction activities.

Before preparing cost estimate for a rural road work you need to understand all road construction activities and their work specifications. The training manual for “ Rural road construction in LBT Technology has been developed by ERA-Don Bosco and in use for the technical training in LBT for rural road construction. This technical manual will be used for this training section

2.2 Process of preparing cost estimates for tendering the labour-based road works

The most important aspect of the tendering process is to know how to fill in the Bill of Quantities (BOQ) and to know how to calculate the unit rates to be used in the bid. The BOQ can be prepared in different ways depending on the client and depending on the type of works. For the ERA Project, and commonly used, is a contract based on UNIT RATES. The understanding of the UNIT RATE ANALYSIS is therefore a key part for calculating the contract price. In order to calculate unit rate analyse the bidder shall follow steps below:

-  Knowing work plan
-  Study scope of work listed in the BOQ
-  Study drawing and work specification
-  Calculate direct cost
-  Calculate indirect cost, calculate company cost
-  Decide profit for the contract
-  Finalise unit rate per work item
-  Calculate the total amount for the final bid price

2.3 Bill of Quantities

The Bill of Quantity (BoQ) is the schedule of works to be completed for a specific duration of time. The BoQ consists of: Scope of works, quantity of works, unit rate and total amount of each item. The scope of work and quantity of the work for the ERA road projects has been prepared by the client, which is common for other clients. The contractors, who are the bidders, are requested to fill the unit rate and calculate amounts of each activity and then sum all activities for the total contract price.

Example: The format of the bill of quantity below is for rural road rehabilitation works in Bobonaro district. The client has surveyed the works and filled the scope of works and quantity of work items. It is expected that the bidders will fill in the unit rate of all work items and calculate the total amount of the bill.

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Scope of works prepared by the client. Details of the works is referred to the technical specification attached in the tender document Quantity of work items provided by the client. The unit rate of each item to be estimated by the bidder The amount= Quantity of each item times(x) the unit rate.						
BILL OF QUANTITY						
Road Name: Balibo Villa-Lecito				District: Bobonaro		
Section-1, Chainage: 0+000-+000, 3 km				Sub-district: Balibo		
Item	Description	Unit	Quantity	Unit Rate USD	Total Amount USD	Remarks
	I. GENERAL ITEMS					
1	Contractor's Establishment	sum	1			
	Total -I General Items				-	
	II. ROAD WORKS					
2	Site Clearance on Earthwork Sites					
2.1	Clearing Inclu. Trees up to dia. 14cm	m ²	16,200			
3.1	Common Excavation	m ³	773			
3.2	Rock Excavation	m ³	120			
3.4	Levelling+Camber from CUT	m ³	1,511			
3.5	Levelling+Camber from BORROW	m ³	938			
5	Gravel Surfacing including load, unload, spread, watering and compaction	m ³	1,530			
	Total -II ROAD WORKS				-	

2.4 Pricing the quantities

The main reason for pricing the quantities is to produce a tender price. In addition, the priced quantities provide information which the contractor can use to prepare his cash flow analysis and check expenditures during construction. The final price which the contractor puts forward as a tender is made up of five parts. These are:

- + Direct costs
- + Indirect costs
- + Risk allowance
- + Company costs
- + Profit

The final price, for the tender, can be seen as a pyramid built up of the five cost elements;

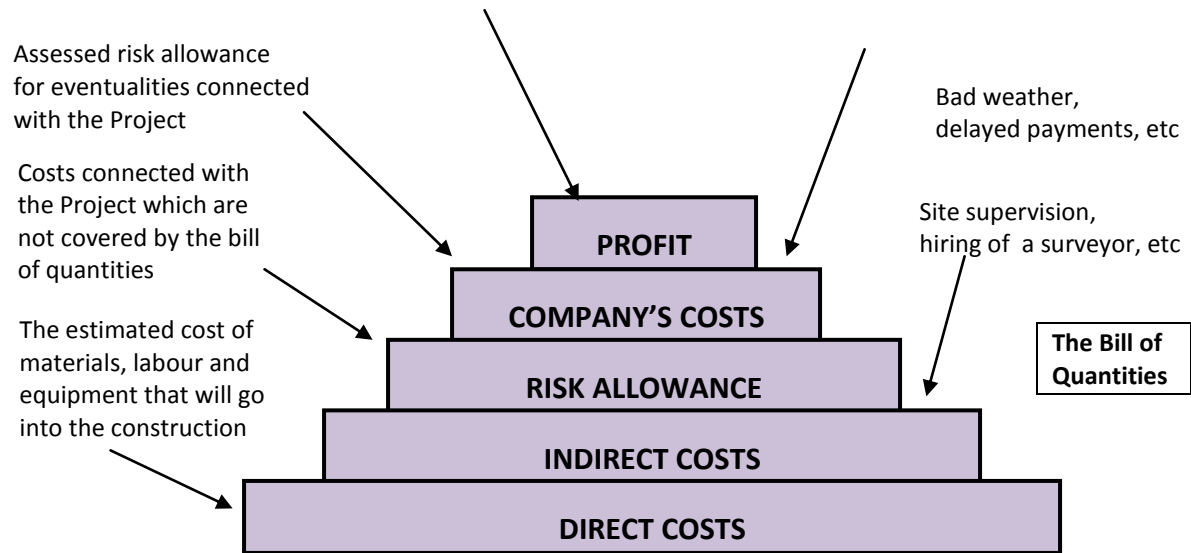
Below is the same pyramid, but with explanation along the left-hand side and example along the right hand side for the various components.

Explanation

Costs connected with running the business

Example

Support staff salaries, rental of office premises, office operational cost, running of vehicles, interest on loans, etc



2.4.1 Direct Cost

The direct cost is the main cost of the bid price, which is shown in the bottom part of the pyramid. The direct cost is basically the estimate of the job before the indirect costs, company cost, risk allowance and profit are added. The direct cost shall consist of:

- + materials
- + labour
- + equipment, hand tools and

2.4.2 Indirect Cost

Indirect costs cover the costs which are connected with the contract but not listed under preliminaries such as employing of engineer, supervisors for supervising the contract, etc. In some cases if the contractor has got experience of similar works and similar duration, the contractor can also calculate the indirect cost as percentage of the direct cost.

2.4.3 Risk Allowance

Risk has to be judged, it cannot be calculated the way quantities and costs are. It can be added to individual items on the bill. In this way it can be added as a proportion on the various works items.

The Risk allowance is considered to cover:

- + sudden increase in price of material,
- + bad weather that making it difficult to complete work on time,
- + unexpected technical problem
- + shortage of particular materials, etc

2.4.4 Company Cost

The company cost is the cost of running the company while the project is going on. The company cost should cover:

- + staff salaries
- + office rental
- + stationary
- + interest on loans
- + phone bill, etc

A contractor has a certain amount of company costs per year (overhead). This must be covered by the money earned from the contracts during that year. Each contract should carry its proportion of the company cost. The bigger the contract the larger proportion on the company cost it has to cover

The contractor needs to estimate the annual total company cost from previous years experience. By knowing the proportion of the time each contract will take during the year a company cost can be calculated for each contract. The percentage of the direct project costs can then be calculated.

2.4.5 Profit

The profit is the cap of the pyramid. As with risk allowance, profit has to be judged or assessed rather than calculated. It is tempting to try to add as larger a profit as possible, but then there is a danger of losing a bid in the competition for the contract if the profit margin has been set to high. How big a profit the contractor can make should depends upon his/her judgment of the market and the state of his business. If there are few jobs available on the market the contractor may have to accept a low profit margin to get a contract, but if demand is high the contractor may be able to increase the profit margin and still get the contracts and in this way making extra money which for instance can be used to invest in an expansion of the business.

In common case, the profit margin is normally added as percentage on the total direct cost. In our example we will allow a profit margin up to 7%.

2.5 How to analyse the unit rate of each work item

In order to analyse the unit rate for each item for the road works and the drainage structures the following information is required:

2.5.1 Labour wage

The labour wage is varying based on category of the labour, but should for unskilled labour be at least USD 4.50 per day, which corresponds to the minimum wage established by the government.

Typically a labour-based project could pay:

Rates for labour

- + Unskilled labour =USD 4.50 per day
- + Gang leader =USD 5.0 per day
- + Skilled labour =USD 7.0 per day

2.5.2 List of equipment and cost:

The ERA project will rehabilitate roads by using labour based equipment supported method for the work implementation. The project aim is to maximize the use of labour and only where necessary, and where the work cannot be implemented by the labour, the project will allow the use equipment to support the activities.

The equipment required to support the labour in labour-based works include rollers for compaction, trucks for hauling and water bowzers.

In our example the cost for the roller, water bowzer and the truck is based on hiring cost. From the previous experience the estimated hiring cost the equipment listed below:

Rates for equipment hire

- + Pedestrian roller capacity 1 tone =USD150/day (example)
- + Dump truck 3 m³ capacity =USD100/day (example)
- + Water bowzer with water tank capacity of 5,000 litres =USD 100/day (example)

2.5.3 List of hand tools and cost:

Good quality hand tools in sufficient numbers are essential for the labour to carry out the road work activities. A well managed labour-based project site can have up to about 150 workers at the same time carrying out the road works activities.

The number and type of hand tools needed for 150 workers is listed below:

Required hand tools for 150 labours					
<i>Item</i>	<i>Description</i>	<i>Unit</i>	<i>Rate. \$</i>	<i>Qty</i>	<i>Amount. \$</i>
1	Tali Nilon/ Nylon String	kg	12.00	20	240.00
2	Metru 5m/ Measure Tape 5 m	pcs	3.50	9	31.50
3	Metru 30m/ Measure Tape 30 m	pcs	5.50	2	11.00
4	Kanuru Kabuar (liman Ai)/ Shovel with handle	set	3.50	70	245.00
5	Karau Dikur/ Pick Axe	set	5.50	70	385.00
6	Ensada/ Hoe	set	4.50	70	315.00
7	Katana/ Rush Knife	set	2.50	15	37.50
8	Nivel/ Line Level	pcs	5.00	4	20.00
9	Karosa Dudu/ Wheel Barrow	pcs	30.00	30	900.00
10	Kado Aii/ Wood Saw	pcs	4.50	2	9.00

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11	Garfu Estrada/ Rake	pcs	3.25	10	32.50
12	Ballu/ Axe	pcs	3.75	20	75.00
13	Eskopu/ Chisel	pcs	1.50	10	45.00
14	Luvass/ Glove	set	0.75	20	15.00
15	Masker/ Mask Protection	pcs	0.50	150	75.00
16	safety traffic Control	pcs	7.00	10	70.00
17	Crowbar 1.5m	no	15.00	20	300.00
18	Ranging Rods & profile Boards	set	16.00	15	240.00
19	Pegs	no	0.2	500	100.00
20	Gravel spreader	no	6.40	30	192.00
21	Hammer	no	3.75	15	56.25
Total price for hand tools for 150 labours					3,400.0

2.5.4 Supervision cost

For the ERA project as well as other similar Labour based project for road works, the requirement of the supervision cost is high for managing labour. For adequate supervision it is proposed that each company should have: 1 site engineer and 3 (or 2) supervisors depending on volume of the contract and duration of the work. From the experience one site supervisors can manage labour up to 100 workers per day. So for instance if the work requires to employ up to 200 labour per day 2 site supervisors will be required for managing the works.

In our example the salary of the supervisory staff is below listed:

Supervision Cost

✚ Site engineer	=USD 500 per month (example)
✚ Site supervisor	=USD 350 per month (example)

2.6 Task rate

The “task rate” is a quantity of work that can be completed by one labour for one day work. The table below is the task rate that have been established through previous projects in Timor-Leste. We will use this norm as reference for the unit rate calculation.

Table Task rate: Table below are task rate for LBT rural road work that is being used by the MPW/R4D project

Summary of Labour based Task rates					
Item No.	Description of works	Unit	Task Rate per day		
			Unskilled	Semi skilled	Skilled
2.1	Site clearance (use skill labour 25 % only for setting out)	m ²	70 - 90	1800 - 2200	2500 - 2700
2.2	Removing of tree	No	1 - 1.5		
2.3	Removal of top soil (use skill labour 25 % only for setting out)	m ²	45 - 60	1000 - 1500	2500 - 2700
2.4	Grubbing	m ²	18 - 25		
2.5	Removal rock - isolated	m ³	0.25 - 0.5		
3.1	Cut to spoil in soft soil (use skill labour 25 % only for setting out)	m ³	1 - 1.5	22 - 26	30 - 35
3.2	Cut to spoil in hard soil (use skill labour 25 % only for setting out)	m ³	1 - 1.25	22 - 26	30 - 35
3.3	Cut to spoil in rock (use skill labour 25 % only for setting out)	m ³	0.2 - 0.3	22 - 26	30 - 35
3.4	Ordinary fill with in 30 m (use skill labour 25 % only for setting out)	m ³	1 - 1.4	18 - 20	20 - 26
3.5	Ordinary fill with haulage beyond 30 m (diggin, loading, spreading)	m ³	0.5 - 0.7	80 - 85	28 - 33
4.1	Leveling (use skill labour 25 % only for setting out)	m ²	32 - 38	600 - 625	800 - 820
4.2	Forming Camber (use skill labour 25 % only for setting out)	m ²	23 - 26	600 - 625	800 - 820
5.1	Gravelling(excavating, loading, spreading) (use skill labour 25 % only for setting out)	m ³	0.7 - 1	80 - 85	28 - 33
5.2	Crushed Base (use skill labour 25 % only for setting out)	m ³	2.5 - 5	20 - 24	28 - 33
5.3	Lean Concrete M100	m ³	1 - 1.25	72 - 77	5 - 7
5.4	Telford base	m ³	0.8 - 1.2	1 - 1.5	2 - 4
5.5	Double Otta seal (use skill labour 25 % only for setting out)	m ²	5 - 7	2500 - 2700	45 - 50
5.6	Plum concrete(35% plum)	m ³	0.5 - 0.65	55 - 60	3 - 5
5.7	Pen Mac 50 mm thick	m ²	0.5 - 0.65	2500 - 2700	3 - 5
5.7a	Sand seal	m ²	0.5 - 0.65	2500 - 2700	3 - 5
5.7b	Prime coat	m ²	0.5 - 0.65	2500 - 2700	3 - 5
5.8	Plain Concrete M200	m ³	1 - 1.2	70 - 75	5 - 7
6.1	Cement Masonry	m ³	3 - 5	60 - 64	1.2 - 1.8
6.2	Gabion	m ³	2 - 3	70 - 75	4 - 5
6.3	Dry Masonry	m ³	2 - 4	61 - 65	3 - 5
6.4	Scour Check	no	3 - 5		
6.5	RCC pipe culvert	m	3.5 - 5		3.5 - 5
6.6	Lean Concrete M100	m ³	1 - 1.25	72 - 77	5 - 7
6.7	Plum Concrete M200(35 % Plum)	m ³	0.5 - 0.65	55 - 60	3 - 5
	Plain Concrete M150	m ³	1 - 1.25	72 - 77	5 - 7
	Plain Concrete M200	m ³	1 - 1.25	72 - 77	5 - 7
6.8	Plain Concrete M250	m ³	1 - 1.25	72 - 77	5 - 7
6.9	Reinforcement Steel	Kg	140 - 160		50 - 53
6.10	Geo- textile	m ²	50 - 60		
6.11	Graded filter(gravel) (use skill labour 25 % only for setting out)	m ³	0.5-0.8	25 - 28	30 - 34

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Summary of Labour based Task rates					
Item No.	Description of works	Unit	Task Rate per day		
			Unskilled	Semi skilled	Skilled
Bio - Engineering works					
1	Slope trimming (use skill labour 25 % only for setting out)	m²	2 - 3	35 - 40	2500 - 2700
2	Earth Excavation in ordinary soil (use skill labour 25 % only for setting out)	m³	1 - 1.5	22 - 26	30 - 35
3	Excavation of hard soil, all complete (use skill labour 25 % only for setting out)	m³	1 - 1.4	24 - 27	32 - 35
4	Gabion work - all complete	m³	2 - 3	70 - 75	4 - 5
5	Cement stone masonry work (1:4 cement sand ratio) - all complete	m³	3 - 5	60 - 64	1.2 - 1.8
6	Stone soling on slope	m³	2 - 4	61 - 65	3 - 5
7	Grass plantation on slopes (use skill labour 25 % only for setting out)	m²	10 - 14	200 - 225	3000 - 3200
8	Tree and shrub plantation	no	30 - 34	600 - 625	
9	Brush layer	m	5 - 7	100 - 125	
Equipments					
		Unit	Task rate per day		
1	Pedestrian Roller	m²	600 - 650		
2	Water browser	m³	70 - 75		
3	Light Truck	m³	8 - 10		
4	Concrete mixture	m³	4 - 7		
5	Pocker vibrator	m³	4 - 7		
6	Bitumen Distribution	m²	1100 - 1250		
7	8 Ton Roller	m²	1100 - 1250		

Note that Task rate may be adjusted depending on the local situation, and on further experiences.

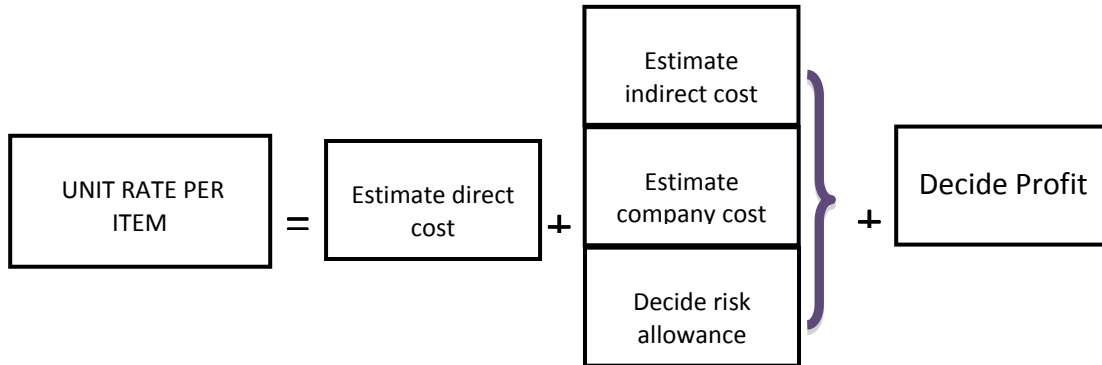
2.7 List material cost

Material cost in this example is the cost of construction material that has been delivered to the construction site. The costs hence include transportation from the store or quarry to the site. The table of the material cost below is only for the example.

Description of material	Unit	Unite price in USD
Cement	Bag of 40kg	8.2
Steel bars	Kg	1.2
Sand	M ³	26
Stone	M ³	20
Aggregate	M ³	70
Gabion box (1mx1mx2m)	piece	35

2.8 Process of unit rate analysis

The Unit rate analyze is a major job for every bidders for estimating the bid price. To prepare the unit rate analysis the bidder shall follow the steps below:



2.8.1 Estimation of the direct cost

The main direct costs to estimate are: (i) labour cost (ii) equipment cost (iii) cost of hand tools and (iv) material cost. To calculate the direct cost we should follow the steps as bellow:

Step 1: Calculation of the labour cost

The labour cost for each work item can be calculated based on the number of workers needed to complete the work in a specific time. The easy way to calculate number of worker is to use a known work norm (productivity norm) from previous experience.

Ex. To calculate unit rate for a work item of “ Leveling and filling ”

The task rate table above gives us the norm for leveling and filling . We pick a task rate of 1.2 m³ /Wd for unskilled labour, 18 M³/WD for semi skilled labour (gang leader) and 24 m³/WD for skilled labour for setting out(but need only 25%)

The labour cost for this activity is calculated in the example below. The labour cost includes skilled, semi-skilled and unskilled worker inputs. For this activity the skilled worker belongs to the setting out team, the semi skilled worker is the gang leader and un-skilled worker is the labour who carry out the activity.

In order to calculate the labour cost per unit of the work we need to know the productivity rate. The productivity rate is the WD (Work-day) spent for one unit of production of the work.

$$\text{Productivity} = 1/\text{Task rate}$$

Calculation of labour cost for 1 m³ of Leveling and filling activity

Wage rate:

Wage for Unskilled labour is US\$ 4.5 / Wd

Wage for Semi skilled labour is US\$ 7 / Wd

Wage for Skilled labour is US\$ 9 / Wd

Productivity:

Task rate for Unskilled labour is 1.2 m³/Wd, so Productivity = 1/1.2 = 0.833

Task rate for Semi-skilled labour is 18 m³/Wd, so Productivity = 1/18 = 0.055

Task rate for Skilled labour is 25 m³/Wd (but required only 25%), so Productivity = 1/25 x 0.25 = 0.0104

Labour cost = Productivity x Wage rate

Cost for Unskilled labour is 0.833 x 4.5 = US\$ 3.75

Cost for semi skilled labour is 0.055 x 7 = US\$ 0.389

Cost for skilled labour is 0.0104 x 9 = US\$ 0.094

Total labour cost of 1 m³ for the leveling and filling activity is **US\$ 4.233**

For the unit rate analyse you can enter the cost in a format as shown below

A	LABOUR Cost for Leveling to form and forming camber					
1	Skill labour for Setting Out (25%)	M ³	24	0.01042	9.0	0.094
2	Unskilled Labour - Excavation	M ³	1.2	0.83333	4.5	3.750
3	Semi Skilled labour(Gang Leader)	M ³	18	0.05556	7.0	0.389
	Sub Total					4.233

Step 2: Calculation the Equipment cost

Based on the experience for the labour road construction, it is economical to use a pedestrian roller of 1 tons or use small of 2-3 tons. This capacity of this size of roller for compaction of rural road works is 150 -200m per day. If you use big roller (8-12 tons)you will most likely not be able to fully utilize the roller capacity. In this example we use pedestrian small of 1 tons with hiring cost is USD 150 /day. And cost of renting water bowser include fuel and operator is USD 100 /day.

Calculate equipment cost for 1 m³ of leveling and filling activity

Renting cost include fuel and operator:

Roller is US\$ 150 / Wd

Water bowser is US\$ 100 / Wd

Productivity:

Task rate of roller is $73.5 \text{ m}^3/\text{Wd}$, so Productivity $=1/73.5 = 0.0136$

Task rate water bowser is $73.5 \text{ m}^3/\text{Wd}$, so Productivity $=1/73.5 = 0.0136$

Equipment cost = Productivity x Wage rate

Cost of roller is $0.0136 \times 150 = 2.041$

Cost of water bowser is $0.0136 \times 100 = 1.361$

Total Equipment cost of 1 m^3 for the leveling and filling activity is US\$ 3.402

For the unit rate analyse you can enter the cost in a format as shown below

B	TOOLS/EQUIPMENT Cost for Leveling to form and forming camber					
1	Pedestrian Roller	M ³ per day	73.5	0.0136	\$ 150	2.041
2	Water browser	M ³ per day	73.5	0.0136	\$ 100	1.361
3	Hand Tool (5% of item A)	%				0.212
	Sub Total					3.401

Step 3: Calculation cost of hand tools

Cost of the hand tools should be calculated based on number of workers and life span of the hand tools. From the work experiences, 150 workers to carry out the labour based road works needs a set of hand tools as listed in section **XX** above. Based on previous experience a set of hand tools for 150 workers is **USD 3,400**.

It is assumed that, the life span for the hand tools is 6 months. Total WDs for the entire life of the hand tool is: $6 \times 26 \times 150 = 23,400 \text{ WD}$

Cost for the hand tools for 1 WD is: $\text{USD } 3,400/23,400 = \text{USD } 0.145/\text{Wd}$

Calculate cost of hand tool in relation to the Labour cost

Cost of the hand tools to complete 1 m^3 of leveling and forming camber is US\$0.145 /WD

Labour cost for 1 m^3 is US\$ 4.233

WDs for 1 M^3 of the leveling and forming Camber is $= 0.0104 + 0.833 + 0.0556 = 0.9 \text{ Wds}$ say 1 Wds

So percentage of hand tool cost in relation to the labour cost is $0.145 / 4.233 = 0.035$ or **3.5 %**

The calculation above confirms that the cost of hand tool can be estimated at 3.5 %– 5 % of labour cost

In our example cost of hand tool for 1 m^3 of leveling and forming camber is $\text{US\$ } 4.233 \times 0.05 = \text{US\$ } 0.212$

Step 4: Calculation material cost : for this the work item of levelling to form camber, material is not needed. Therefore the material cost for this item is **None**.

Step 5: Total direct cost of 1 m^3

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Total direct cost for the soil excavation (levelling to form camber) of 1 m³ is: cost of labour + cost of equipment + cost of hand tools, ie

US\$4.233+US\$3.401+US\$0.212 = US\$ 7.634.

Table below is format for unit analyse and show Direct cost of the “Leveling and forming camber item

UNIT PRICE ANALYSIS						
Project : Project Code M27018351809 Location :						Works Item No. 3.4 Fill from within 30 metres
Work Item: Fill from within 30 metres - excavation within the road corridor, spreading, watering, leveling and compacting (without haulage)						Unit - 1 M3
No	Description	Unit	Task Rate	Productivity	Unit Price (US\$)	Amount (US\$)
A	LABOUR Cost for Leveling to form and forming camber					
1	Skill labour for Setting Out (25%)	M ³	24	0.01042	9.0	0.094
2	Unskilled Labour - Excavation	M ³	1.2	0.83333	4.5	3.750
3	Semi Skilled labour(Gang Leader)	M ³	18	0.05556	7.0	0.389
	Sub Total					4.233
B	TOOLS/EQUIPMENT Cost for Leveling to form and forming camber					
1	Pedestrian Roller	M ³ per day	73.5	0.0136	\$ 150	2.041
2	Water browser	M ³ per day	73.5	0.0136	\$ 100	1.361
3	Hand Tool (5% of item A)	%				0.212
	Sub Total					3.401
C	MATERIAL					
	Sub Total					0.000
D	TOTAL DIRECT COST FOR 1 M3 OF LEVELING TO FORM CAMBER ACTIVITY IS					7.634

The same exercise shall be applied to other work items in the Bill of Quantity (BOQ) so that the direct cost for every work items can be estimated.

2.8.2 Calculation of the Indirect cost

Indirect costs cover the costs which are connected with the contract but not listed under preliminaries. Employing of engineer, supervisors for supervising the contract, etc.

a. Calculation total Supervision cost

There are difference ways to calculate the supervision cost. In some cases the supervision cost is calculated by giving percentage of the direct cost. In the example below, the supervision cost is calculated based on duration of the work and number of supervisory staff required to supervise the work for the entire project duration.

This example, the engineer has planned to complete the work within 5 months. The engineer has planned to recruit about 100 - 150 labourers per day. Therefore the site supervisory staff requirement should be: 1 engineer and 2 site supervisors.

The supervision cost to complete the above road works is tabulated below:

Supervisory staff	Number	Monthly salary. USD	Total amount for 5 months. USD
Supervisors	2	350	3,500
Site Engineer	1	500	2,500
Cost of hiring motor bike and fuel for the engineer	1	150	750
Total supervision cost			6,750

From the total supervision cost, we need to calculate the supervision cost for each work item in the bill of quantity. To calculate the supervision cost for each item we should follow the steps below:

b. Calculate total direct cost for the project.

Insert the calculated unit rate of direct cost of each work item into the unit rate column in the BOQ. The total direct cost of each item = unit rate of direct cost X (times) quantity of each item.

The total direct cost the project = summary of the total direct cost of all items.

Our example in **Annex 1** shows that the total direct cost of the project = **USD 104,147.0**

c. Calculate percentage (%) of the supervision cost.

The percentage of the supervision cost is: $6,750/104,147 \times 100 = 6.5 \%$

The supervision cost is therefore **6.5 %** for every work item.

2.8.3 Calculate the company cost

The company cost (or overhead) should cover staff salary, office property, stationary, etc. The cost can be calculated for the entire project duration. In this example, the project duration is 5 months, but some of the company cost has been split on two projects equally. The company for the 5 months duration is tabulated below:

Description	Percentage (%)	Monthly cost. USD	Cost for 5 months USD
Salary of the manager	50 %	500	1,250
Salary of Clerk	50%	200	500
Official rental	50%	300	750
Phone bill	100%	100	500
Stationary	Lumpsum	-	300
Electricity	50%	100	250
Total			3,550

Total company cost for the **5** months duration is USD **3,550**

Total percentage for the company cost is $=3,550/104,147 \times 100 = 4\%$

The company cost is therefore **4 %** for every work item.

2.8.4 Calculation of risk allowance

The Risk allowance is considered to cover rising cost of material, bad weather delaying work completion, unexpected technical problem, etc. In many cases, the risk allowance is considered as a percentage of the direct cost. In this example, the risk allowance is considered to be **2%** (only for this exercise) of the total direct project cost.

2.8.5 Preliminary costs

This item should cover site camp establishment, mobilization of staff and equipment, maintenance of the site camp during the contract period, installation of project site boards, etc. In our exercise, this item is not included in the indirect cost. This item has been set separately as lumpsum amount.

2.8.6 Profit

The profit should be set based on assessment of current situation and job competition, etc. Normally the profit is set as a percentage of the total project cost. In this example

we have put the profit as 7% of the direct cost. Remember that the higher the profit margin the less chance to win a bid in competition with other bidders.

2.8.7 Calculate the final unit rate

To calculate the total unit rate of the item we need to add the indirect cost. The indirect cost is obtained by adding the percentage of supervision (6.5%), company cost (4%), risk allowance (2%) and profit (7%) - a total of **19.5%** on each item in the Bill of Quantity.

Example of calculating final unit rate, ie direct + indirect cost:

The unit rate of direct cost of (Filling and forming Camber) is USD 7.634

The indirect cost, including, supervision (6.5%) company cost (4%) , risk allowance (2.0%) and profit and tax (7.0%) for leveling and forming camber item is:

$$19.5 \% \times 7.634 = \text{US\$ } 1.489$$

$$\text{Total final unit rate for this item is item is: } \text{USD } 7.634 + 1.489 = \text{USD } 9.123$$

The table Annex 2 shows final unit rate analysis for this work item for this contract.

Note: To the above process for calculating the In-Direct cost should be done for every bid. Percentage (%) is not the same from one bid to other that depends on size of the work but will not be too big difference from this calculation (19.5 %).

To be easy for the bidder in analyzing the unit of each work item, the bidders can calculate the In-direct cost by using (19.5%) of the Direct cost.

2.9 Calculation of the Final Contract Price

Once unit rate of all work items have been calculated, transfer these unit rate in the unit rate column in the Bill of Quantity. The amount of each work item is calculated below:

Example: The above item (Fill for leveling from borrow)

$$\text{Quantity} = 575 \text{ m}^3 \times \text{USD } 9.123 = \text{USD } 5,247$$

Repeat the same exercise for other work items and insert all the unit rates in the column of unit rate in the BOQ. Calculate the amount by: **Quantity x (times) the unit rate**. Total contract price is the total sum of all work items as details shown in Annex 2

Chapter 3: Submitting a bid

Now we know that cost of a project, we have to decide on how much profit to add. When we have the price that we are going to include in your bid to offer to the client, we also have to consider the way in which the bid is to be submitted. If there is a small difference in the price quoted by two contractors, the client will probably choose the quotation/bid that looks the most professional bid.

3.1 How much profit should you add?

In the unit cost analyse you might try and add as large a profit as possible, but then there is a danger of losing in the competition for the contract. How big a profit you should add to the estimate depends on your judgment. If there are few jobs available you may decide to accept a low profit margin to get a contract which will help to cover your overheads (company costs), but if there is a good demand it may be possible to increase the profit margin and obtain additional funds to invest in expanding the business. Details in this matter shows in **chapter 10.8 “Hint of Submitting a winning bid”**

3.2 How to calculate profit

The following is an example of calculating a profit.

As in the “risk allowance” example, we will base our calculations on a direct project cost of XXXX \$. Let us suppose that this job can be fitted in easily with our existing workload and it will help to employ some of our currently underutilized plant and artisans. The job market is quite tight and we know that a lot of other contractors will tender, so we decide to keep our profit allowance down to 7-8 per cent of the direct cost.

The profit allowance is calculated on the project direct cost since that is the service we are offering to our clients. The calculation is quite simple:

Profit allowance = 7 % of the direct cost = 0.07 (x) XXXX \$

As it was done when preparing cost analysis indirect project costs, the profit is prepared for every individual work item. Once the direct cost is identified then the profit is calculated by adding 7-8 per cent to each of them.

3.3 Contingencies

In some project contingency is not included in the bid document but some project has indicated of a certain percentage for the contingency.

The inclusion of a provision for contingencies is a way to help both client and contractor by giving an opportunity to:

- ✓ Cope with any problems that may arise and
- ✓ Enhance the value of the job by improving the specification or adding minor items that may required by the client.

The bidder must not add any contingency amount if the client does not ask for or in the bid document does not mention it. If the bid document included the contingency amount, the bidder can include accordingly. Normally the contingency is included and mentioned in the

BOQ in certain percentage. If so the bidder must calculate according to the percentage given.

Basically the contingency amount is paid for any unforeseen work. If there is not unforeseen work or extra work the contingency amount will not be paid for the contractor.

3.4 Qualification of bid and sample of covering letter for a bid

Before submitting the bid the bidders must check if all the required document are filled and included. It is normally the bid document contains checklist that required all bidders to submit. Make sure you see the checklist and submit the document accordingly. An sample checklist is attached in Annex:5

A bid should be covered with a covering letter from the bidder to the bid committee. Sample of the covering letter is shown in Annex 5.

3.5 Hint of Submitting a winning bid

In order to compete for winning a bid, you should offer a competitive bid price. As the client also like to see and award a contract to a contractor that offered better bid price which is: Lowest qualified bid prices and technically sound. This does not mean that you will win a bid when you submit lowest bid price but you will have more chance to win the bid. How can you prepare a lower bid price?



The bid price in general includes: **Bid price = Cost(direct and Indirect) + Profit.**

In order to lower your bid price you can:

1. Lower your Cost
2. Lower your Profit
3. Lower your Cost and Profit

Lower Profit allowance: If many companies compete with each other, you may like to lower your profit. For instance: In general the profit allowance ranks from 5 % to 10 % of the Cost. If there is high competition, many companies bidding, you might need to lower the profit to 5% to stand a better chance of winning in order to keep the office and company continually operating. On the other hand, if there is a little competition, few bidders because there is no interest in the work, then you may still win the bid even if you include a higher profit.

Lower Cost: Cost of a bid include: **Direct cost + Indirect Cost:**

Indirect cost include: Supervision cost, company cost, risk allowance. The Indirect cost from one bid to another is not much different and will not affect the total cost much Cost because the requirement number of staff for supervising a contract is set by the client. And the office operational cost is more or less the same or similar. **Risk allowance** is normally set the client, so this cannot be changed by any bidders.

Direct cost: Direct cost for each item in a bid include:

Direct cost = Labour Cost + Equipment and Hand tools cost + Material cost

The direct cost is a major cost that potentially affects to the **total bid price**. To submit a winning bid or to lower a bid price you should look at any of above input requirements and decide whether it is possible to reduce any these costs. Taking in consideration to reduce the total bid price by:

A. Reducing Labour Costs?

How can you reduce the cost of labour? This is a question whether you can reduce the labour cost and how to do it ? Look at the options below:

- ✓ **Daily wage:** The daily wage for labour **CANNOT** be reduced below minimum wage.
- ✓ **Productivity:** The productivity for labour should not be increased beyond the reasonable level. e.g. Task rate for excavation and filling for levelling of road work is 1.3 m³/WD. To increase the task rate to 1.5 m³/WD maybe beyond the capacity of a worker in order to complete the task in one day. Therefore we should try to keep the **productivity at a reasonable but optimum level!**
- ✓ **Increase Productivity:** If labour are not well managed to carry out a job in a construction site especially for the labour based road construction/rehabilitation work that will lower the productivity or we can say it in another way that will increase **cost of labour**. This mean that you can increase the productivity by proper organizing labour for the job. **Well organized labour can increase the productivity.** A few suggestions below:
 - When you build a concrete road surface, place the concrete mixer uphill so wheelbarrow should haul the mix concrete downhill NOT uphill
 - Prepare work plan before so workers can start the work on time
 - Use same labour for the same job as long as possible to do the same task – improved efficiency

B. Reducing Costs – Equipment and Use well maintained tools!

The equipment Costs are probably easiest to reduce. Many contractors do not own equipment for the road construction work, especially heavy equipment such as rollers and excavators. They rent the equipment based on the need and the nature of the project. e.g. when a contractor is awarded a road construction contract then the contractor starts renting a roller to carry out the work. The bidder should lower renting cost equipment before estimate the bid price. You should keep thinking of how the equipment cost can be reduced. Below there are some tips for you:

- ✓ Use suitably matched equipment for your work. e.g. use a roller size that is utilized the whole day. Should Not use big a roller of 12T roller that is not fully utilized.
- ✓ Consider renting out your unused equipment to contractors nearby or share use of equipment (like roller and excavator) to other contractor nearby when the capacity of the equipment is higher than nature of your work. e.g. Share use of 12 T roller for two road sections nearby. Or share use of 1 excavator with other contractors nearby.

- ✓ Maximize use of full capacity of equipment. e.g. If you rent an excavator for excavating and delivering gravel for road surfacing, you should have enough trucks to transport the gravel while the excavator is excavating and loading the gravel in trucks.
- ✓ Service your equipment regularly: when the equipment is not working, the labour cannot perform their work as some need to be carried out without supporting equipment. e.g you use 15 labour for a concrete work with supporting by a concrete mixer. When the concrete mixer is not working the labour also can not continue the work.
- ✓ Monitor the use of equipment especially vehicles and trucks.

C. Reducing Costs - Materials

Can the material cost be reduced? Yes it can. Experience shows that cost of material is highly variable from one shop to the other in Timor Leste, especially construction material. These included:

- ✓ Construction material quoted in shops like cement, steel bars, gabion baskets, geotextiles etc. To ensure you get a good price for these material you should:
 - Visit local suppliers before estimating cost for your bid
 - Do quotation for several shops before deciding to buy those material from the cheapest
 - Try to negotiate for discounts
 - Investigate possibility of supplier delivering to site AND compare that to your costs of delivery to site
 - If there are volume discounts, join up with another contractor
 - Do not buy more material than you immediately need this might tie up working capital
 - Carefully consider the price of transporting materials when bidding
 - ADN has recently agreed on fixed prices (reasonable) with a supplier who will sell in all Districts
 - Do NOT buy sub-standard materials that will cause your works to be rejected. You will lose money!
 - Try to control the quantity of material during delivery and storage.
- ✓ Same case for construction material that can be procured locally like stone, river gravel and sand. These material price variable from one Suku to the other. To ensure you get a good price for these materials you should:
 - Ensure you have a good agreement with local community prior to starting work (when buying local materials)
 - Consult with relevant community leaders before preparing your bid
 - Come to firm agreements on price and collection method of local materials e.g. stone, sand and river gravel etc.

- Carefully investigate sources of local materials and suitable alternatives if possible

D. Reducing Costs – Tools

The labour-based road construction required many hand tools for labourers that include hoes, shovels, pick axes, wheel barrow, crow bars, bush knives etc to carry out activities for the road construction and construction of drainage structures. There is an allowance of about 4-6% added onto the labour cost to cover the cost of tools. From this shows that cost of the hand tool is very little compare to labour cost or total bid price. In this regard:

- ✓ You should not reduce cost of your project by try to reduce cost of the hand tools. Experience shows that the savings made when buying sub-standard tools leads to much higher losses in productivity. Example below:
 - if you buy a good rake(spreader) to spread gravel cost you \$15 and it results in 10% increase in labour productivity compared to you buy a poor rake to spread gravel cost you \$5.
 - It takes only 22days to gain the extra \$10 invested
 - If the rake (spreader) lasts for 6 months the \$15 rake (spreader) will give you a “profit” of \$65 over the 6 months over the \$15 Rake (spreader).
- ✓ Ensure the labourers are equipped with correct hand tools for the job
- ✓ Carefully watch the use of tools and see if there are improvements you can make

E. Submitting a winning bid

After thinking of the optimization of the above reduction, this is the time to make calculation of the bid price. You need to do more exercise as below example:

- ✓ First you calculate your bid prices without doing any of the above optimizations. Then you keep all the calculation that is “ non-optimized” from the above option.
- ✓ Then you revisit all your processes and decide where you can reduce your costs
- ✓ To calculate your cost three times by using the following options to reduce the cost as:
 - i. Reduction of some costs. You are certain that you will be able to manage to implement the work
 - ii. Reduction of further costs. You think you will still be able to manage the contract but must run a very effective operation.
 - iii. Reduce the bid further. This is risky and you may not be able to implement the contract with a profit.
- ✓ **You now have 4 possible bid prices**

Bid Price	Description
Non-optimized	Safest bid price. You will make a profit but may not win job
Optimized (i)	Safe bid price. You will make a profit if you optimize your operations. It gives you a better chance of winning contract
Optimized (ii)	Slightly risky bid price. You will only make a profit if you

	carefully manage your site and eliminate any inefficiency. Best chance of winning the contract
Optimized (iii)	Risky bid price. You can only make a profit if you run a very efficient operation. There is no room for mistakes. Certainly win contract, but may struggle to complete

Chapter 4: Management of equipment for rural road work

In most rural road construction works, there is always a demand for a certain amount of construction equipment. Well maintained and managed equipment are important as it determines the productivity and quality of the works carried out.

Poorly managing or performing equipment is the most common reason for slow progress of a road works project. Equipment is also expensive and can easily be destroyed if it is not operated correctly and supervised by competent staff.

Construction equipment also plays an important role on road project relying on labour-based works technology. By definition, labour-based methods consist of an appropriate combination of manual labour complemented with a limited use of equipment. Equipment used on labour-based road works projects is mainly for operations such as haulage of materials and hauling water, compaction, mixing concrete etc. In addition, there will be vehicles and possibly motorcycles used for work supervision.



4.1 Manage transport (hauling) equipment (truck/dump truck)

4.1.1 Managing dump Trucks

Dump trucks are most common type of equipment used for hauling large quantities of materials from quarries and borrow pits to the work sites. They are available in various sizes, with a load ranging from 5 to 15 tones. The most common use dump truck in Timor Leste is 5 Tons dump truck. In most cases the trucks need to travel on public roads in order to deliver the materials from the quarries to the work sites. Dump trucks are well suited for



hauling long distances. They are readily available in the construction industry and provide a means of transporting materials such as stone, aggregate, gravel and other surfacing materials and material for constructing drainage structures.

When using dump trucks for to haul gravel for road surfacing operation, it is important to plan the operation to ensure that the trucks are properly utilized. This implies that the work activities in the quarry are correctly organised so that loading of the trucks can take place immediately when they arrive to collect materials.

Management for dump trucks for graveling operation:

Graveling operation for road surfacing is the most expensive operation for the rural road construction work. Poor management for transporting gravel will led to high cost for the

road work that will ultimately make the contractor lose money on this operation. Gravel for road surfacing on rural roads is often hauled 1-10 km. Within this distance using dump truck for transporting the gravel is most economic. However, proper planning in term of number of trucks and trips for this operation is very important and should be carefully calculated by the site engineer.

For planning and operating transport gravel for the road surfacing is it important to calculate number of truck to complete this operation. The following steps are sample for calculating number of trucks required and number of trips required to complete a road surfacing work:

Step 1: Look at your work plan to determine the timing of the graveling operation

Step 2: Find out from the BoQ the total quantity of gravel required to complete the work

Step 3: Find out the capacity of the truck you have available. Normally for the 5 tons truck you can load between 2.5 to 4 m³ per trip. If the route is difficult, with steep gradients, plan for the lower end of the capacity range.

Step 4: Measure hauling distance from quarry to the road site. Table below shows relation between number of trip per day and haulage distance.

Haulage by trucks				
Trucks with a capacity of 3 ~ 5 m ³ of loose gravel is commonly used for rural road works in Timor-Leste. Haulage routes are often very difficult with steep gradients and poor road conditions etc. The table below is based on experiences from other countries and shows the number of trips one truck can carry during one day (8 hours). Gravel is loaded manually				
<i>Typical haulage rates for manually loaded trucks</i>		<i>Equipment haulage productivities by tipper/truck per day (Number of trips)</i>		
<i>Recommended productivities rate</i>	<i>Haulage distance</i>	<i>Good route</i>	<i>Fair route</i>	<i>Bad route</i>
	Up to 2.0 km	22	18	16
	2.1- 4.0 km	19	15	12
	4.1 - 6.0 km	16	12	10
	6.1 - 8.0 km	11	8	7
	8.1 - 10 .0 km	8	6	5

Step 5: If the gravel is excavated and loaded by excavator, determine the loading capacity of the excavator. The number of trucks that should be deployed will be based on capacity of the excavator.

If the gravel is excavation and loaded by labour, the number of labourer should be calculated based on capacity of trucks available on site.

Important note:

- i. Delivery of gravel should be recorded for each trip using form "material delivery sheet" as attached in **Annex 9**
- ii. Each truck and excavator operation shall be recorded by using form "log book" as attached in **Annex 8**

Step 6: It is important to assign one field staff who will receive and monitor the gravel delivery on site. This staff should check the quantity of gravel delivered by each truck and record the quantity in the material delivery sheet. The delivery point where the gravel is offloaded should be marked with a wooden peg. The distance between these offloading points shall be determined based on the quantity delivered and the quantity needed for the gravel spreading operation.. Below is the form of material delivery sheet

Material delivery logbook

Date (fill even if no supply)	Time	Truck dimension (average height of load)			Qty (m3)	Driver Signature	Supervisor Signature	Breakdown Rain, etc
		Length	Width	Height (aver.)				
1-Jul-13	8.3	3	1.5	0.5	2.25	Jose	Andre	
1-Jul-13	10.3	3	1.5	0.4	1.8	Jose	Andre	
1-Jul-13	13.15	3	1.5	0.3	1.35	Jose	Andre	Rain

When: Every trip during the delivery of material especially delivery of gravel for the road surfacing.

Procedure: Each trip of the material delivered on site shall be recorded by a nominated person for the contractor. The information that should be recording the logbook is:

- ✓ The nominated person of the contractor should record date and time of each material delivery on site
- ✓ The nominated person should measured quantity of the material on the truck before allow unloading. If the quantity is less than agreed then he or she must inform the truck driver and also inform his or her superior.
- ✓ The nominated person from the contractor should mark the location before the material is unloaded.
- ✓ The nominated person from the contractor and the truck driver sign the form for each trip of the material delivered.

Monitoring: At the end of each day the logbook should be checked by the site engineer or by the direct or site manager to ensure:

- a. Whether the truck operated according to plan. Ex: the plan for each truck to deliver 10 trips per day but in the record shows that the truck operated only 8 trips per day. In this case the engineer should find out the problem and resolve accordingly,
- b. Whether the truck transported right quantity for each trip. Ex: 1 truck can load 3 m³ per trip but from the record the truck loaded only 1.5 m³ per trip. In this case the engineer should find out the problem and resolve accordingly,
- c. You can look at an examples below on how a truck can be managed and controlled:

Example 1: (i) Calculate number of trucks required to transport gravel for surfacing of a 2 km road (ii) calculate time required to complete the material (gravel) delivery. Excavation and loading of gravel is done by an **excavator**.

- ✓ Total quantity of loose gravel to be delivered: $2,000 \times 3.5 \times 0.12 \times 1.2 = 1,008 \text{ m}^3$
- ✓ The hauling distance to transport gravel from quarry to site is 2 km. From the table each truck can travel 12 trips per day.
- ✓ The capacity of the excavator for excavation and loading is $140 \text{ m}^3 / \text{day}$
- ✓ The capacity of each truck is 2.5 m^3 per trip
- ✓ 1 truck can transport $2.5 \times 12 = 30 \text{ m}^3$ per day
- (i) **Number of truck required are** $= 140 \text{ m}^3 / 30 \text{ m}^3 = 4.6$ or 5 trucks per day
- (ii) **Number of days to complete the gravel delivery** $= 1,008 \text{ m}^3 / 140 \text{ m}^3 = 7.2$ days

From the above example the contractor needs 5 trucks in order to fully utilize capacity of the excavator. It is very important to maximize the use of the excavator as the renting cost of the excavator is very high. It is advisable in order to reduce cost of mobilizing and demobilizing of the excavator, the contractor should coordinate with other neighboring contractors to share the use of the excavator.

Note: For this operation it is strongly recommended that the contractor pays the rental of trucks based on number of trips per day. It is also important that the trucks deliver the agreed quantity for each trip. The number and quantity delivered must be closely monitored.

If the contractor rents trucks on a monthly or daily basis then the site supervisor must control number of trips each day and record each trip using the material delivery sheet. Note, the contractor has to pay the trucks whether or not they deliver gravel on site, because payment is based on time rather than number of trips. The Director and engineer should regularly check the record, weekly or even daily if possible.

Example 2: (i) Calculate the time to complete gravel delivery for a road of 2 km and (ii) number of labour required for excavating and loading the gravel. Excavation and loading of gravel using **labour**.

- ✓ Total quantity of loose gravel to be delivered: $2000 \times 3.5 \times 0.12 \times 1.2 = 1,008 \text{ m}^3$
- ✓ The contractor has 2 trucks available on site and hauling distance to transport gravel from quarry to site is 2 km. Each truck can make 10 trips per day including loading. The time for loading gravel should not be more than 20 minutes.
- ✓ Capacity of truck is 2.5 m^3 per trip
- ✓ 1 truck can transport $2.5 \times 10 = 25 \text{ m}^3$ per day. Two trucks can do $= 25 \text{ m}^3 \times 2 = 50 \text{ m}^3$ per day
- i. **Number of days required are** $= 1,008 \text{ m}^3 / 50 \text{ m}^3 = 20.2$ or **21 days**
- ii. **Number of labour excavation and loading are:**

- ✓ Number of labour to excavate gravel if task rate is $1.3 \text{ m}^3 / \text{WD}$
 $50 \text{ m}^3 / 1.3 = 38.5$ or **39 Worker per day**
- ✓ Number of labour for loading gravel on truck if task rate is $5 \text{ m}^3 / \text{WD}$
 $50 \text{ m}^3 / 5 = 10$ **Worker per day**

Note: It is recommended to use excavator for the excavation and loading of gravel in hilly or mountainous areas as this operation is too hard for manual labour., Excavation and loading of gravel in flat terrain or river gravel can be done cost effectively by labour.

4.1.2 Managing truck deliveries:

Trucks are commonly used for transporting construction materials like cement, steel bars, bitumen, gabion baskets etc. Delivery of construction material is however more costly than delivery of gravel, sand and stone for the road work because it requires a team of workers to manually load and unload the material. See below example how to manage this truck to transport construction material.

Example 3: You need to transport 500 bags of cement from Dili to Maubisse. The capacity of the truck is 5 Tonnes.

- a) How many trips are needed for one truck to complete this delivery?
1 bag of cement is 40 kg. 1 truck can transport 5 tonnes= 5,000 kg/40 kg= 125 bag
So one trip can transport **125 bags of cement**.
- b) If the truck owner wants to load only 75 bags per trip. How many trips would be required to complete the delivery ?
Number of trips = $500/75 = 6.7$ or **7 trips**.
- c) If the renting cost is USD 150 per trip. What is cost difference between (a) and (b) ?
Option (a) Number of trips: $500/125 = 4$ trips
Cost for transporting all 500 bags of cement: 4 trips x US\$ 150= **US\$ 600**
Option (b) Number of trips: 7 trips
Cost for transporting all 500 bags of cement: 7 trips x US\$ 150= **US\$ 1,050**
The difference in cost: US\$ 1,050 – US\$ 600= US\$ 450

4.2 Manage roller

Rollers are the most efficient piece of equipment for compaction of soils and gravels for road construction. Some rollers are equipped with a vibrating mechanism, while others simply rely on their weight to compress the materials. There are a number of sizes, ranging from small pedestrian rollers to large 12 Tones roller. The one tones twin-drum pedestrian vibrating roller has proved to be very effective for the labour based road construction.

For pedestrian roller 1 tons can easily transported to from site on the back of a pickup truck. The pedestrian roller is commonly used for both earthworks and gravel surfacing operations and for compacting foundation of bridge or large culvert. It is also useful for repair and widening of roads.

As renting cost or operational cost of the roller is high the roller should be operated in efficiency way. Logbook should be used on a daily basis. The record includes: time of operation and time of break and fuel consumption. The site engineer can easily check the logbook to ensure that the roller work full hours of operation as well and can also easily monitor fuel consumption. . The logbook is also important in order to know when it is time for maintenance. You can use the same logbook as for the truck mentioned above in 4.1.1. A sample logbook to be use during operation of the roller is included in Annex 8.

4.3 Manage water Bowsers

Water is required when compacting earth and gravel layers for the road construction. Water is also needed on site for construction of drainage structure. Dry soils needs additional water to reach the correct moisture content at which level the soils are more effectively compacted. In most cases this involves transporting water from an appropriate source to the work site. Water tanks or water bowsers are normally fitted on a flatbed truck. In order to fill the water bowser, it needs to be equipped with a pump and the appropriate amount of hoses. If it is difficult to find a water bowser, a water container with capacity of 1,000 to 5,000 liters can be fixed on a truck equipped with a water pump.

The operation of the water bowser should be controlled in the same way you control the trucks on site, using the logbook mentioned in the chapter of truck(4.1.1). For the LBT road work, it is common to use water bowser with a capacity of 3,000-5,000 liters. One water bower with 3,000 to 5,000 liters capacity should be enough to do this operation for constructing a road work.

4.4 Manage excavation equipment (excavator)

Excavation for road work using LBT approach is commonly done by labour especially the excavation of earthworks. This also apply to the excavation of gravel in a quarry for graveling operation. It is however recommended to use excavator for the excavation and loading of gravel where quarry is located in a hilly area or gravel source is hard to excavate manually.

Very few contractors in Timor-Leste own excavators. Most of them rent heavy equipment on a needs basis. The cost of the renting an excavator is very high. It is therefore very important to carefully plan the operations when the excavator is required. The more output from the excavator the more profit earned by the contractor. Using excavator to excavate gravel for the graveling operation should be combined with dump trucks. A key factor to maximizing the output for your gravelling operation is to carefully plan the number of dump trucks needed to fully utilize the capacity of the excavator. How to allocate number of trucks in order to maximize use of the capacity of the excavator is the question.

Normally, the productivity of an excavator is higher than productivity of labour. You usually need more than a dump truck to utilize your excavation capacity effectively. The number

of trucks needed depends very much on hauling distance from quarry to the construction site.

The **example 1 (Chapter 4.1.1)** above describes how to calculate the number of trucks required based on the productivity of an excavator.

As renting cost or operational cost of the excavator is high, the excavator should be operated in efficiency way. The logbook should be recorded on a daily basis. The record should include: time of operation and time of break and fuel consumption. By monitoring and analysing the records the site engineer should ensure the excavator works full time, the agreed hours of operation per day, as well as monitoring fuel consumption.. A properly maintained logbook is important on order to determine when it is time to do the maintenance of the excavator. A sample of a logbook to be used for the operation of the excavator is included in Annex 14.

4.5 Basic equipment work norm for LBT road construction

The table below shows proposed productivity of the basic construction equipment that is normally used in labour-based construction. The proposed productivity norms are based on experience from various projects in Timor-Leste as well as from neighbouring countries. This data can be used for planning, management and cost estimating purposes.

Table below shows productivity norm of basic construction equipment for rural road works.

No	Equipment	Unit	Productivity per day
1	Pedestrian roller 1 tonnes	m ²	500-600
2	Roller 5-8 tonnes	m ²	1000-1200
3	Water bowzer (water source 5-10 km)	Trip	5-10
4	Dump truck (5 tonnes)- within 4 km distance Average road condition (for gravel)	m ³	30-38
5	Concrete mixer	m ³	4-7
6	Poker vibrator	m ³	4-7

4.6 Contract for Hiring and Leasing

Leasing and Renting Arrangement: A possible alternative of providing equipment for small scale contractors would be a leasing or rental arrangement, usually involving a plant leasing company. Especially when inflation is high, ownership of equipment can be very expensive for a small contractor and the contractor will have limited incentives to prolong the life of the equipment by proper care and maintenance. Hence, contractors do not develop the necessary understanding of the need to provide resources for equipment maintenance and renewal which is an essential part of contract management. In order to avoid any argument in terms of use and cost of the rented equipment, both parties (owner of the equipment

and the renter) should sign a written agreement. A sample of a rental agreement for an equipment is included in **Annex 10**

Some concerns when choosing to rent equipment for road construction works include:

- ✓ its availability in the area or vicinity to the work site,
- ✓ how to deliver it to the construction site,
- ✓ how easy is it to operate and how easily it can be reversed,
- ✓ its cost and reliability, and
- ✓ the availability of spare parts and repair facilities.

4.7 Using a log book and plant/equipment hire sheets

You should produce a log book for each item of plant, equipment or vehicle that you own or you rent. The driver should be instructed to record the purpose and times of each trip in the log book, so that the costs can be shared out between the different jobs it is used on. Where the equipment is on hire or has to be charged to a particular site, a plant/equipment hire sheet should be prepared as shown in the example below.

Log book of plant hiring sheet

Make sure the sheets are signed daily on behalf of client to avoid arguments when submit your invoice

Item of plant/equipmet:.....

Name of owner:.....

Hir rate: US\$.....

Date plant/equipment arrive on site:.....

Date of work	Morning		Afternoon		Total work hour	Hour Break for maintenanc	Name of operator	Oil	Desiel/ gasolin	Signature	
	Start	Finish	Start	Finish						Operator	client supervisor

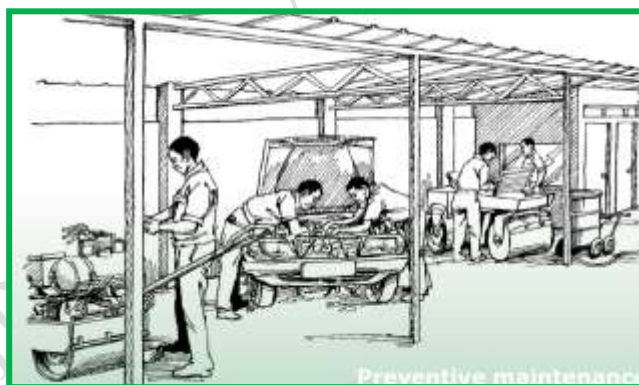
4.8 Maintenance of plant/ equipment

Using equipment without maintenance will reduce lifetime of the equipment. All equipment must be regularly maintained and serviced. Equipment maintenance should be seen in a long-term perspective in view of the capital investment involved.

The following possibilities options for establishing mechanical support for maintenance and service of the equipment:

- ✓ developing contractors' own capacity for basic preventive maintenance and repair of equipment;
- ✓ utilizing existing private sector mechanical maintenance facilities;
- ✓ negotiating suppliers' maintenance contracts for new or refurbished plant and equipment procured by contractors.

The contractor must ensure that (i) the operators are aware of the required maintenance and service of their equipment, (ii) that the site has access to adequate workshop facilities, and (iii) that service and repairs are carried out at the right time. Each piece of equipment comes with an operator manual, which specifies when and where lubrication and adjustments are required.



The most common components in need of daily inspection and service are shown in the checklist below:

- | | |
|---------------------------------------|--|
| ✓ lubrication oil levels | ✓ connections from the alternator |
| ✓ radiator water levels | ✓ V-belts and their tension |
| ✓ hydraulic oil levels | ✓ tire pressure |
| ✓ hydraulic hoses and couplings | ✓ transmission oil level |
| ✓ grease nipples/tracks | ✓ brake and clutch fluid levels |
| ✓ battery terminals and battery water | ✓ nuts and bolts of buckets and tracks |

With each piece of equipment, there should be a basic set of tools for carrying out preventive maintenance and minor repairs. These tools should be handed to the operator. To minimize any loss, he /she is held personally responsible for any loss of these tools. Depending on the amount of equipment on site, there is a need to plan some form of workshop facility at the site camp where mechanical works can take place.

In order to operate the construction equipment in an efficient manner, it will require regular service and repair facilities on site. To secure this, appropriate procedures are required on site, which ensures that the equipment receives regular preventive mechanical maintenance. For large construction sites the contractor often chooses to assign a mechanic on a full time basis to the site. On smaller work sites, the contractor may opt for a part time arrangement in which the mechanic oversees the equipment on several construction sites. In either case, it is important that the construction equipment is inspected on a regular basis by competent staff. Equally, it is the responsibility of the mechanic to instruct the operators in the proper use of the equipment and routine service requirements.

4.8.1 Spare Parts

The equipment on site requires a ready supply of spare parts. The spare part requirements depend on the type of equipment on site and to what extent the repairs will be carried out on site or alternatively contracted out to a local workshop. If the equipment on site is standardized, consisting of a few models and brand names, the amount of spare parts can be reduced. Some parts are replaced more often than others. Fast moving items include:

- | | |
|---|---|
| ✓ oil and fuel filter fan belts spare, tyre and tubes | ✓ fuses v-belts spring bushes air filters |
| ✓ spark plugs points engine mountings lamp bults | ✓ wiper blades ball joints radiator hoses shock absorbers |

In addition, the site needs general consumables for servicing g the equipment, such as oils and grease, brake and hydraulic fluids, assorted nuts, bolts and washers, patching materials, insulation tape and electrical wire. While spare parts are expensive, running out of them and therefore not being able to repair the equipment incurs larger costs to a project. The site mechanic needs to advise the camp management on the type and amount of spare parts which are necessary to store on site. For the same reason, all spare parts need to be stored securely to avoid any theft.

4.8.2 Reporting and Monitoring

The performance of construction equipment needs to be carefully monitored in order to ensure that they are operating at the highest capacity. Consumption of spare parts, lubricants and fuel is monitored in detail for each piece of equipment. Equally, it is important to monitor the usage of the equipment that is:

- 1) providing management with information on the specific activities to which the equipment was assigned, and
- 2) avoiding misuse. Monitoring of fuel and oil consumption is also a good indicator for the mechanics in charge of servicing the equipment. Equally, the service intervals need to be noted down to ensure that they actually take place at the right time and on a regular basis. With a proper reporting system, it is also possible to calculate the operating costs for the equipment.

The daily movement of the equipment or vehicle should always be signed by the driver or operator while the repairs and services should be specified and signed by the mechanic.

Monitoring of equipment basically consists of carrying a separate logbook for each piece of equipment and the vehicles. The logbook would contain two forms, one in which the work activities and fuel consumption is entered, and a second, keeping records of all repair and maintenance provided to the equipment. The daily movements of the equipment should always be recorded and signed by the operator. Repairs and service activities are logged and signed by the mechanic or whoever carried out this work.

Below is the log book for recording operating hour and fuel consumption:

Data	Dader		Loro kraik		Uza oras hira/ km	Gazoel/ gazonlina	Naran operator	Asinatura
	Oras/ km Hahu	Oras/ km Hotu	Oras/ km hahu	Oras/ km Hotu				

When: The log book is recorded at least twice in a day of work which is morning before starting and after the work and apply same in the afternoon. For truck and vehicle should be recorded before and after each movement or at least twice in a day which is morning and afternoon.

Procedure:

- ✓ One log book for one piece of equipment.
- ✓ When starting work in the morning, record date and time . For trucks and vehicles also record km (speedometer) start
- ✓ Record fuel consumption
- ✓ Any break time should also be recorded.
- ✓ When finished the work the time of completed work or km at the end of the day.
- ✓ Signature of the driver and name shall be inserted

4.8.3 Service Schedules

To maintain equipment in good condition, it is important to regularly inspect and service. The services need to be planned carefully so that the equipment can be transported to a workshop where qualified staff and the necessary tools and spare parts are available. Maintenance schedules are based on kilometers or the total number of hours an engine has been operating.

In addition, there are daily and weekly checks which need to be carried out. An appropriate time for carrying out checks and service activities is when fuelling the equipment. Equipment suppliers provide advice on the service intervals and the recommended activities. Make sure that the manufacturers recommended service intervals are not exceeded. Although the major service intervals are based on the amount of usage of the equipment (km, hours), it may be more effective to plan the service when it is not in use, such as after normal working hours or in the rainy season when there is not much civil works taking place. The service and repair activities should be organized so as not to disrupt site activities.

It is important that you analyze the logbook at least once in a month. If you do not do this you might lose a lot of money !!!!

To keep all equipment in good condition it is important to have it inspected and serviced regularly. You have to plan the service accordingly and to make sure the necessary arrangements are made in time.

Maintenance service schedule are based on kilometer driving or engine hours operated. In addition, daily and weekly checks have to be carried out. However, it is recommended to plan the service schedule on a regular time schedule, e.g. every month, regardless whether each piece of equipment has reached the targeted hours or kilometer. This system allows a better planning of operations and services limit as set by machinery a regular service in good time, whether the kilometer or hour meter is working or not. The other advantage is that your staff will get used to regular services and it will become routine for them. Ask your equipment and vehicle dealers for advice on the detailed requirements for services.

4.8.4 Maintenance and services record

A repair detail can be recorded in a logbook. You can also specify in the logbook when the routine maintenance or services are planned, so that the driver/operator, site supervisor and mechanic can check when the next services is due.

Below is the example of a logbook for maintenance record:

Date	Details or repair/service	Spare parts used	Consumable items used	Signature of mechanic	Next service

4.8.5 Safety during maintenance

During maintenance or servicing it is important to follow the following instruction for our own safety.

- ✓ Switch off the engine before servicing the equipment.
- ✓ Do not allow unauthorized person on the plant or vehicle when it is being repaired
- ✓ Lower all cable or hydraulic controlled equipment before servicing. When work is to be done with the blade suspended, put a block under it.
- ✓ When inflating a tyre be careful to prevent the air pressure from rising too high. During inflation, keep your body away from the tyre.
- ✓ Stop the engine when checking or adjusting fan belt and rotary parts.
- ✓ Do not leave metal objects on the battery. Short-circuiting of the electrodes will generate sparks which damage the battery and can create fire danger. Always disconnect the battery before repairing the electrical system
- ✓ When you use gasoline for cleaning purpose, make sure that is no naked flame in the vicinity.
- ✓ Wait until the cooling water temperature drops, then remove the radiator cap carefully. Loosen it little by little to let the pressure escape.

Chapter 5: Sub-Contracting

A sub-contractor is a contractor who signs an agreement with the main contractor for part of a work under a specific contract. Separate sub-contracts may be let for specific activities to be carried out by the sub-contractor such as:

- ✓ Delivery gravel for road surfacing work
- ✓ Labour cost sub-contract for construction of small culvert, lined drain, small drift, small bridge, construction of bioengineering work,
- ✓ Labour cost sub-contract for construction of plum concrete road surface,
- ✓ Labour cost sub-contract for excavation of foundation of a bridge,
- ✓ Community routine road maintenance work etc.

Normally the sub-contractor is hired directly by the main contractor with no prior approval of the client. The sub-contractor signs a separate agreement directly with the main contractor. In this case the full responsibility for the supervision and timely delivery of the work of the sub-contractors rests with the main contractor. However, as stipulated in the agreement with the client, the contractor must inform the client of any work that is sub-contracted and the sub-contractors used. The client has the right to reject a sub-contractor proposed by the contractor.

It is very important that the contractor manages the sub-contractors closely. The sub-contractors must mobilize their services on time and then carry out their part of the work as scheduled in the overall project work plan, indicate in the main contract. It is important that any preparatory works are complete and that the work site is clear and ready for the sub-contractor to commence the work.

Sub-contracting generally remains limited to labour contracting which is mainly called community sub-contracting or labour sub-contracting. The community sub-contracting usually involve construction drainage structures (lined drain, culvert, drift along a road, construction of bioengineer work, routine road maintenance etc.)

For operations like graveling work where the main contractor do not have his or her own equipment, such as dump trucks or excavator, the contractor can sub-contract the gravel delivering work to a firm who own enough equipment to perform this operation.

Before sub-contracting a preparation work should be done:

- ✓ Which part of the work to be sub contracted,
- ✓ Decide quantity of the work to be sub contracted
- ✓ Make estimate of the cost as a base for the negotiation with the sub-contractor. In this respect the cost estimation should be based on the cost analysis that you have prepared and attached in your contract. To ensure that the cost of the sub-contracting is not higher than the cost in your contract of that specific work.

- ✓ The sub-contractor should be selected in vicinity of the project site in consultation of the local authority.
- ✓ The contractor should inform the client of the planned arrangement, including the proposed agreement with the sub-contractor (before it has been signed)
- ✓ Negotiation of the sub-contract price. Once the sub-contract price is agreed an agreement should be prepared and signed by both parties, ie the main contractor and sub-contractor.

A good example of when to use sub-contractors is when starting the structure works. Several separate sub-contracts can be prepared if there are many structures to be completed. The ideal situation would be to start the culvert and bridge works first, thereby ensuring proper access when the road works activities commence. It would be important to ensure that all earthworks and structures have been completed before the involvement of any sub-contractor to deliver gravel for the surfacing work.

Same concerns apply when **hiring equipment** for specific activities. Once the equipment arrives on site, the supplier will normally charge hiring fees no matter whether the equipment is used or not. In order to fully utilize the equipment, the works for which it is intended must be ready for commencement. If the equipment is to be used in combination with certain materials, other pieces of equipment or labour, these inputs need to be supplied and readily available on site.

In some cases the sub-contractors may be hired directly by the client or indirectly through the main contractor on site. The client would usually leave the responsibility for coordinating the inputs of other contractors to the main contractor. This case is not very common practice in Timor Leste especially for the construction of road using LBT approach.

Some guidelines

- ✓ The contractor is ultimately responsible for the successful completion of the contract and is bound by the agreement to manage all work activities including sub-contractors.
- ✓ Before agreeing to sub-contract of the work, the main contractor shall request for prior approval from the client.
- ✓ For road rehabilitation work, simple sub-contracts should be negotiated and signed wherever possible, specifying well-defined activities, quantities of work, conditions of employment, the rights and obligations of the both parties and term of the payment. The terms of such a sub contract should be negotiated and not imposed.
- ✓ Selected representatives of the community can be designated responsible for the complete and proper execution of the works by the community (for community sub-contracting).
- ✓ For community sub-contracting for routine maintenance work, training for the routine maintenance should be conducted for the maintenance group. The initial training should be conducted by the client.

- ✓ For sub-contracting gravel delivery , the sub-contractor has agreed to deliver a certain amount of gravel in a certain time, or in an agreed number of trips. To avoid dispute, the main contractor shall nominated a representative, a person to be responsible for monitoring the quantity and quality of the gravel delivered. A form of material delivery sheet is attached in Annex 9. This form shall be signed for every trip of the material delivered by main contractor's representative and the truck driver.
- ✓ Same procedure is applied for sub-contracting delivery of stone, crushed stone and sand for the construction of drainage structures.
- ✓ For any sub-contracting works both parties should enter into written sub-contracting agreement.

EXAMPLE ONLY

Annexes:

Annex 1 Estimate direct cost

ESTIMATE DIRECT COST					
Item No	Description of works	Unit	Quantity	Direct cost. USD	
				Unit rate	Total
1	GENERAL ITEMS				
1.1	Contractor's Establishment	Is	1	1,000.0	1,000.0
1.2	Insurance (Reimbursable)	Is	1	1,370.0	1,370.0
1.3	Safety and Health provision	Is	1	500.0	500.0
1.4	Reinstatement of quarries+other	Is	1	300.0	300.0
1.5	Material testing	Is	1	500.0	500.0
	TOTAL- GENERAL ITEMS				3,670.0
	ROAD WORKS				
2	SITE CLEARANCE				
2.1	Bush cutting, grass clearing and grubbing	m ²	15,400	0.15	2,319.67
2.2	Remove of Trees	no		-	-
2.3	Remove of top soil	m ²		-	-
2.4	Remove rock from carriage way	m ²		-	-
3	EARTH WORKS			-	-
3.1	Cut to spoil-soft soil	m ²	925	4.18	3,870.29
3.2	Cut to spoil -hard soil	m ²		-	-
3.3	Cut to spoil - soft rock	m ²	75	13.4	1,004.18
3.4	Levelling from cut	m ²	815	5.9	4,774.06
3.5	Fill for levelling from borrow within 150 m	m ²	575	7.80	4,485.00
3.6	Fill for levelling from borrow beyon 150 m	m ²		-	-
3.7	Fill to form camber from borrow within 150 m	m ²	1,000	7.95	7,949.79
3.8	Fill to form camber from borrow beyon 150 m	m ²		-	-
3.9	Fill Embankment	m ²		-	-
4	ROAD SURFACING			-	-
4.1	Gravel surface (12-15 cm)	m ²	1,125	16.32	18,357.74
4.2	Road base	m ²		-	-
4.3	Plain concrete surface (12 cm)	m ²		-	-
4.4	Plum concrete surface (12 cm)	m ²		-	-
4.5	Penetration macadam	m ²		-	-
4.6	Telford surface	m ²		-	-
	TOTAL- ROAD WORKS			-	42,760.7
5	STRUCTURAL WORKS			0	
	LINED DRAIN AND PROTECTION			0	
5.1	Stone masonry lined drain (1,050m)	m ²	325	87.87	28,556
5.1	Stone masonry retaining wall	m ²		-	-
5.2	Scour Check	no		-	-
5.3	Gablon	m ²	80	56.90	4,552
5.4	Geotextile	m ²	-	-	-
	SLAB CULVERT (80x80x5m, 9 locations)	9		0	
5.1	Stone masonry	m ²	85	87.87	7,468.62
5.5	Concrete of mix propotion (1:3:6)	m ²	2	188.28	338.91
5.6	Concrete of mix propotion (1:2:4)	m ²	10	209.21	2,071.13
5.7	Concrete of mix propotion (1:1.5:3)	m ²		-	-
5.8	Reinforcement steel bar	kgs	1,145	1.81	2,069.62
5.9	Formwork and support	Is	1	451.88	451.88
5.10	Excavation for structure	m ²	90	4.18	376.57
5.11	Demolish exsting structure	Is	-	-	-
5.12	Construction of detour road	Is	1	451.88	451.88
5.13	Back fill for structure	m ²	45	7.53	338.91

Item No	Description of works	Unit	Quantity	Direct cost, USD	
				Unit rate	Total
	SLAB CULVERT (80x80x6m, 1 locations)				
5.1	Stone masonry	m ³	12.0	87.87	1,054.39
5.5	Concrete of mix proportion (1:3:6)	m ³	0.50	188.28	94.14
5.6	Concrete of mix proportion (1:2:4)	m ³	1.50	209.21	313.81
5.7	Concrete of mix proportion (1:1.5:3)	m ³		-	-
5.8	Reinforcement steel bar	kgs	145	1.81	262.09
5.9	Formwork and support	Ls	1	50.21	50.21
5.10	Excavation for structure	m ³	10	4.18	41.84
5.11	Demolish existing structure	Ls	-	-	-
5.12	Construction of detour road	Ls	1	50.21	50.21
5.13	Back fill for structure	m ³	5	7.53	37.66
	SLAB CULVERT (60x60x5m, 1 locations)			0	
5.1	Stone masonry	m ³	7.0	87.87	615.06
5.5	Concrete of mix proportion (1:3:6)	m ³		-	-
5.6	Concrete of mix proportion (1:2:4)	m ³	1.00	209.21	209.21
5.7	Concrete of mix proportion (1:1.5:3)	m ³		-	-
5.8	Reinforcement steel bar	kgs	105	1.81	189.79
5.9	Formwork and support	Ls	1	50.21	50.21
5.10	Excavation for structure	m ³	7	4.18	29.29
5.11	Demolish existing structure	Ls		-	-
5.12	Construction of detour road	Ls	1	50.21	50.21
5.13	Back fill for structure	m ³	4	7.53	30.13
	DRIFT (SIZE: 4mx30m, No=...1., Chainage 2+214)			0.00	
5.1	Stone masonry	m ³	20.0	87.87	1,757.32
5.5	Concrete of mix proportion (1:3:6)	m ³			-
5.6	Concrete of mix proportion (1:2:4)	m ³	18.0	209.21	3,765.69
5.7	Concrete of mix proportion (1:1.5:3)	m ³		0.00	-
5.8	Reinforcement steel bar	kgs	105.0	1.81	189.79
5.10	Excavation for structure	m ³	25.0	4.18	104.60
5.11	Demolish existing structure	Ls			-
5.12	Construction of detour road	Ls			-
5.13	Back fill for structure	m ³	20.0	7.53	150.63
5.3	Gabion	m ³	20.0	56.90	1,138.08
5.4	Geotextile	m ²	-	-	-
4.2	Road base (Stone base)	m ³	20.0	41.0	820.08
	TOTAL- STRUCTURAL WORKS				57,680.75
7	ROAD FURNITURE				
7.1	Project sign boards	No	1	70	70
7.2	Traffic sign boards	No			
7.3	Guide posts installation and painting	No	4	30	120
	TOTAL- ROAD FURNITURE				190.00
	GRAND TOTAL				104,147.00

Annex 2 Sample of unit rate analyses

UNIT PRICE ANALYSIS						
Project : Project Code M27018351809 Location :						Works Item No. 3.4 Fill from within 30 metres
Work Item: Fill from within 30 metres - excavation within the road corridor, spreading, watering, leveling and compacting (without haulage)						Unit - 1 M3
No	Description	Unit	Task Rate	Productivity	Unit Price (US\$)	Amount (US\$)
A	LABOUR Cost for Leveling to form and forming camber					
1	Skill labour for Setting Out (25%)	M ³	24	0.01042	9.0	0.094
2	Unskilled Labour - Excavation	M ³	1.2	0.83333	4.5	3.750
3	Semi Skilled labour(Gang Leader)	M ³	18	0.05556	7.0	0.389
	Sub Total					4.233
B	TOOLS/EQUIPMENT Cost for Leveling to form and forming camber					
1	Pedestrian Roller	M ³ per day	73.5	0.0136	\$ 150	2.041
2	Water browser	M ³ per day	73.5	0.0136	\$ 100	1.361
3	Hand Tool (5% of item A)	%				0.212
	Sub Total					3.401
C	MATERIAL					
	Sub Total					0.000
D	TOTAL DIRECT COST FOR 1 M3 OF LEVELING TO FORM CAMBER ACTIVITY IS					7.634
E	CONTRACTOR'S OVERHEAD, RISK AND TAX (19.5% x D)					1.489
F	WORK UNIT PRICE (E+F)					9.123
Notes :						
1. Task rate is based on the soil type.						
2. Unit cost for skill labour , unskilled labour and semi skilled labour based on the government rate						
3. Unit cost of equipment's are based on hiring rate per hour/per day						
4. All cost belong to all of expenditures of related tax, and other cost to complete the work item						

UNIT PRICE ANALYSIS						
Project :						Works Item No.
Project Code	M27018351809					5.1 Gravelling
Location :						
Work Item:	Road surface Graveling, all complete					Unit - 1 M3
No	Description	Unit	Task Rate	Productivity	Unit Price (US\$)	Amount (US\$)
A	LABOUR					
1	Skill labour for Setting Out (25%)	M ³	30	0.00833	9.0	0.075
2	Unskilled Labour - digging	M ³	1	1.00000	4.5	4.500
3	Unskilled Labour - loading	M ³	6	0.16667	4.5	0.750
4	Unskilled Labour - spreading and leveling	M ³	3.15	0.31746	4.5	1.429
5	Semi Skilled labour(Gang Leader)	M ³	84.58	0.01182	7.0	0.083
	Sub Total					6.836
B	TOOLS/EQUIPMENT					
1	Hand Tool (5% of item A)	%				0.342
2	Pedestrian Roller	M ³	73.5	0.0136	\$ 100	1.361
3	Water browser with fuel and operator	M ³	73.5	0.0136	\$ 90	1.224
4	Light Truck 3 m3 capacity	M ³	21	0.0476	\$ 90	4.286
	Sub Total					7.213
C	MATERIAL					
		Unit	Quantity		Rate	
1	Sub base course materials (65 mm down,) either from quarry or river bed materials	M ³				0.000
	Sub Total					0.000
D	SUM OF LABOUR,EQUIPMENTS AND MATERIAL (A+B+C)					14.049
E	CONTRACTOR'S OVERHEAD, RISK AND TAX (19.4% x D)					2.725
F	WORK UNIT PRICE (E+F)					16.774
Notes :						
1. Task rate is based on the soil type.						
2. Unit cost for skill labour , unskilled labour and semi skilled labour based on the government rate						
3. Unit cost of equipment's are based on hiring rate per hour/per day						
4. All cost belong to all of expenditures of related tax, and other cost to complete the work item						

UNIT PRICE ANALYSIS						
Project :						Works Item No.
Project Code	M27018351809					6.1
Location :						Cement Masonry
Work Item:	Cement stone masonry work (1:4 cement sand ratio) - all complete					Unit - 1 M3
No	Description	Unit	Task Rate	Productivity	Unit Price(US\$)	Amount (US\$)
A	LABOUR					
1	Skilled Labour	M ³	1.5	0.66667	9.0	6.000
2	Unskilled Labour	M ³	3.5	0.28571	4.5	1.286
3	Semi Skilled labour(Gang Leader)	M ³	62.5	0.01600	7.0	0.112
	Sub Total					7.398
B	TOOLS/EQUIPMENT					
1	Hand Tool (5% of item A)	%				0.370
2	Concrete Mixture machine for mortar mixing	M ³	8	0.125	50	6.250
	Sub Total					6.620
C	MATERIAL					0.000
		Unit	Quantity		Rate	
1	Stone (stone size minimum 15 cm thick)	M ³	1.2		\$ 20	24.000
2	Cement	bags	4		\$ 7	28.000
3	Sand	M ³	0.45		\$ 20	9.000
4	Water	Lit	104		\$ 0.010	1.040
	Sub Total					62.040
D	SUM OF LABOUR,EQUIPMENTS AND MATERIAL (A+B+C)					76.058
E	CONTRACTOR'S OVERHEAD, RISK AND TAX (19.4% x D)					14.755
F	WORK UNIT PRICE (E+F)					90.813
Notes :						
1. Task rate is based on the soil type.						
2. Unit cost for skill labour , unskilled labour and semi skilled labour based on the government rate						
3. Unit cost of equipment's are based on hiring rate per hour/per day						
4. All cost belong to all of expenditures of related tax, and other cost to complete the work item						

Annex 3 Sample BOQ of MPW/R4D

SCHEDULE OF WORKS AND BILL OF QUANTITIES

Road Name: Baquia to Larisula		Chainage Start:		0+000				
District: Baucau		Chainage End:		5+900				
Sub district: Quelicai		Total Road:		5.900 Km				
Suco: Alaua Crai and Larisula								
ITEM NO	Description of works	Unit	Quantities	Unit Rate in. US\$	Amount in US\$	Workdays		
						Skilled	Semi skilled	Un skilled
1	General items							
1.1	Personal accident and public liability insurance - for Bagaia-Larisula (5.9km), Bagaia-Larisula (7km) and Quelicai-Laisorolai roads	LS	1	1,200.00	1,200.00			
1.2	Relocation of services	LS	1	150.00	150.00			
1.3	Reinstatement of quarries and other sites	LS	1	150.00	150.00			
1.5	Health and Safety provision (drinking water)	month	11					
1.6	Handtools (Not to be Price)	-						
1.7	Safety equipment							
1.7.1	Safety hat	no	8					
1.7.2	Jacket - yellow	no	8					
1.7.3	Jacket - orange	no	1					
1.7.4	Boots	no	3					
1.7.5	Gloves	no	15					
1.7.6	Masks	no	15					
1.8	Additional labour input	wd	25					
1.10a	Routine maintenance Dry season	km.month	29.5					
1.10b	Routine maintenance Wet Season	km.month	35.4					
1.11	Material testing	LS	1	200.00	200.00			
			Sub-total item 1					
2	Site clearance							
			Sub-total item 2					
3	Earth works							
3.1	Cut to spoil - soft soil	m ³	23					
			Sub-total item 3					
4	Road works							
			Sub-total item 4					
5	Road surfacing							
5.1	Gravel - 15 cm	m ³	44					
5.3	Lean concrete base - 5 cm	m ³	6					
5.6	Plum concrete - 12 cm	m ³	14					
			Sub-total item 5					
6	Structural works							
6.1	Cement masonry	m ³	14					
6.2	Gabion	m ³	14					
			Sub-total item 6					
7	Road furniture							
7.1	Project signboard	no	1					
			Sub-total item 7					
8	Bio-engineering							
			Sub-total item 8					
			Total (USD)					

Annex 4 Sample of Work Programme

The bar-chart format below represents a sample Work Programme only. Bidders are advised to adopt this format, but submit their own Work Programmes on at least A3 size sheets

No.	Description	Works					Aug-14				Sep-14				Oct-14				Nov-14				Dec-14				Jan-15			
		Unit	Qty.	Wds	Bid price. \$	%	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	General Item	Ls	1	10	3670	2.8	5																				5			
	ROAD WORKS																													
2	Bush cutting, grass clearing and grubbing	m ²	15,400	193	2,772	2.1	77				77				38															
3	Fill for leveling from borrow within 150 m	m ³	575	479	5,261	4.0					239				240															
4	Fill to form camber from borrow within 150 m	m ³	1,000	833	9,151	7.0									417				416											
5	Gravel surface (12-15 cm)	m ³	1,125	281	21,307	16.3																	140				141			
6	Stone masonry lined drain (1,050m)	m ³	325	650	34,450	26.4					216				217				217											
7	Gablon	m ³	220	220	14,850	11.4					55				20				20				20							
8	SLAB CULVERT (11 locations)			550	23,466	18.0					137				137				138				138							
9	DRIFT (1)			120	15,487.00	11.9													40				40				40			
10	Project sign boards	No	1	5	70	0.1																					5			
11	Guide posts installation and painting	No	4	5	120	0.1																					5			
TOTAL WORKS				3346	130,604	100.0																								
WDs per Month							82.0				724.0				1069.0				831.0				338.0				181.0			
WDs Cumulative							82.0				806.0				1875.0				2706.0				3044.0				3346			
Monthly progress (in %)							2.5				21.6				31.9				24.8				10.1				5.4			
Cumulative progress (in %)							2.5				24.1				56.0				80.9				91.0				100.0			

Annex 5: Sample of a filled bid document

COMPANY LETTER HEAD

Date:/.....2014

To: Bid committee
MPW/R4D
Dili, Timor Leste

From : [Name of director].
Company Name:

Subject: Bid submission of [Insert bid No:, road Name:..... District:.....]

1. We would like to draw your attention to our enclosed offered bid price based on the bid document with inclusion of the conditions, specification and drawing set in the bid document.
2. Our bid price is xxxxxx\$ subject to the conditions set out in bid document which we suggest would be for use solely at your discretion.
3. This quotation is valid for 90 days from the day of submission of the bid.

Yours faithfully,

Signature:

Name of Director
Name of Company

BID SUBMISSION CHECKLIST

All the certificates and forms in this list must be included in your tender. If any items are missing your tender may be rejected.

Technical proposal

Certificates		Validity	Notarized
C1	Licença	Valid on the date of submission	Yes
C2	Ownership ('Para quem ...')	-	Yes
C3	Certidão de Dívidas	Valid on the date of submission	Yes
C4	TIN	-	Yes
C5	Estatutos		
C6	Bank statements for past 6 months		
C7	Don Bosco Training Course certificate(s) *		

Forms		
T1	Front cover	Yes
T2	Bidder's information sheet	Yes
T3	Written Power of Attorney (if tender is signed by other than Director)	No
T4	Authority to obtain references from the bank	Yes
T5	Records of attendance at the pre-bid training, site visit and meeting	Yes
T6	Information regarding past or current litigation	Yes
T7	List of completed construction contracts	Yes
T8	List of current construction contracts	Yes
T9	Statement of commercial capability	Yes
T10	Organisation chart	Yes
T11	List of staff	Yes
T12	CV of Director	Yes
T13	CVs of Engineer/Supervisor (one CV per person)	Yes
T14	Work programme	Yes
T15	Statement of work management	Yes
T16	Statement of equipment availability	Yes
T17	Statement of material sourcing	Yes
T18	Statement of local development	Yes
T19	Agreement with the community (required only if a contract is awarded)	Yes

Financial proposal

Forms		
F1	Front cover	Yes
F2	Bid form	Yes
F3	Bill of Quantities (see Volume 2)	Yes
F4	Breakdown of unit prices	Yes
F5	Advance payment guarantee (required only if a contract is awarded)	Not yet
F6	Performance guarantee (required only if a contract is awarded)	Not yet

Signed documents

(3 of each; 1 must have original signatures on each page, 2 can have copied signatures on each page)

Volume 1 – Instructions to bidders, Conditions of contract, Specifications	Yes
Volume 2 – Bid date, contract data, drawings	Yes

Technical Proposal

District: **Bobonaro**

Sub-District: **Balibo**

Road name: **Balibo-Leohitu**

Km: **2.5 km**

Contract reference: **MPW/R4D xxxxxxxxxxxx_**

Name of contractor: **Maria**

Address of contractor: **Malian town, Bobonaro**

Telephone number: **77327999**

Form T2 – Bidder's information sheet

Company	Name: Maliana town Unip Lda
Company's Director	Name: Maria Address: Malian town, Bobonaro Telephone number: 77327999 E-mail address: maria@yahoo.com
Company's year of constitution	Year: 2005???
Company's authorized representative	Name: Antonio Address: Malian town, Bobonaro Telephone number: 77327888 E-mail address: antonio@yahoo.com

Form T3 – Written Power of Attorney

This form is required only if the tender is signed by other than the Director.

**If the director sign
the bid, this form
does not need to be
filled**

Place, date

Power of Attorney

To whom it may concern.

This to certify that I, (name of Director), Director of (name of Company) is authorizing (name of the person) to sign the bid for Rural Roads Maintenance Works Packages in District xxxx.

Yours sincerely,

Name of Director

Name of Company

Form T4 – Authority to obtain references from the bank

This form allows the Employer to request references from the Bidder's bank regarding the management of the account.

Authorization

We hereby authorized representative from the Evaluation Committee to enquire and get information from our designated bank as follows:

Company Name : **Maliana Town Unip Lda**

Company Address : **Maliana town, Bobonoro district**

Bank Name : **ANZ**

Account No : **xxxxxxxxxxxxx**

Bank Address : **Timor Plaza, Dili**

Yours sincerely,

Mariamaria

Name of Director: **Maria**

Name of Company: **Maliana Town Unip Lda**

Pre-bid training *

This is to record that Sr(a) **Maria** and Sr(a) **Lita** of **Maliana Town Unip. Lda** participated in the training at Don Bosco on the **20 to the 30 of January 2015**, including training on how to complete the tender documents.

Sra Maria _____

Sra Lita _____

Contractor _____ MPW _____ ILO/R4D _____

To attach pre bid training certificate

To fill name of MPW and R4D staff who conduct the training

* or submit certificate handed out at the pre-bid training course

Pre-bid site visit

This is to record that Sr(a) **Maria** and Sr(a) **Lita of Malian Town Unip Lda** attended the site visit to **Balibo to Leohitu road on the 5 of February , 2015** and were given the opportunity to ask questions relating to the work described in the BoQ.

Sra Maria _____

Sra Lita _____

Contractor _____ MPW _____ ILO/R4D _____

To fill name of MPW and R4D staff who conduct site visit

Pre-bid meeting

This is to record that Sr(a) **Maria** and Sr(a) **Lita of Malian Town Unip Lda** participated in the meeting at **Malian on the 3 of February , 2015** and were given the opportunity to ask questions obtained all documents and information required to complete the tender documents.

Sra Maria _____

Sra Lita _____

Contractor _____ MPW _____ ILO/R4D _____

To fill name of MPW and R4D staff who conduct prebid meeting

List of litigation, current or during the last 3 years

Copy of contracts/invoices to be attached

No litigation Recent litigation (see below) Current litigation (see below)				
Year	Matter in dispute	Contract reference	Value of contract (\$)	Value of pending claim (\$)
	N/A	N/A	N/A	N/A

Completed construction contracts during the last 3 years

Copy of contracts/invoices to be attached – indicate the value of work completed by the Bidder

No.	Name of contract	Employer (with contact details)	Value of contract (\$)	Contract start and end date	Value invoiced (\$)
1	Road rehabilitation	MPW/R4D: Road rehabilitation of Marobo-Bemanas toad of 2.5 km	US\$350,000	June 2013 to June 2014	US\$330,000
2	Road rehabilitation	PDID: Road rehabilitation in Leohitu to Ferik Katuas of 1.5 km	US\$150,000	June 2012 to June 2013	US\$140,000
3					

Current construction contracts, committed or in progress

Copy of contracts/invoices to be attached – indicate the value of the work to be completed by the Bidder

No.	Name of contract	Employer (with contact details)	Value of contract (\$)	Contract start and estimated end date	Value invoiced to date (\$)
1	Construction of	PDID: School construction in Balibo sub district	US\$50,000	December 2014 July 2015	US\$30,000

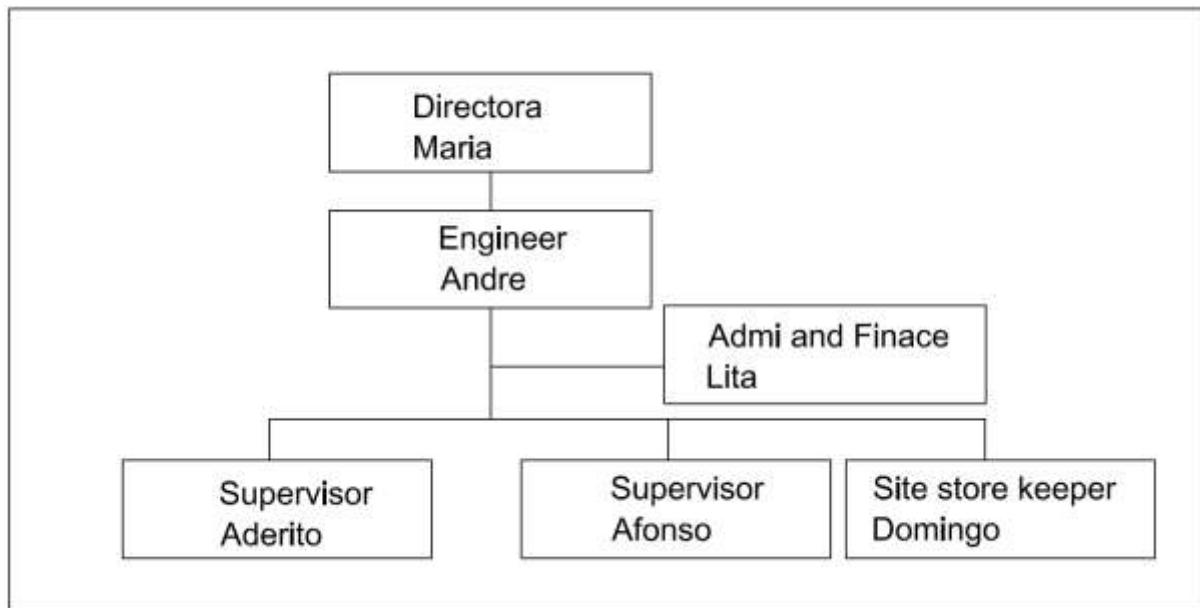
Form T9 – Statement of commercial capability

The bidder should describe the commercial capability of the company, using the following headings.

Who owns the company? Maria owns the Malian Town company What is the nature of the business of the company? Civil construction business and running shop for selling construction material
For how many years has the company been working in civil construction? Start the civil construction business since 2005 till present What has been the financial turnover of the company over the last 3 years? 2013: US\$ 5,0000 2012: US\$ 30,000 2011: US\$ 20,000 What has been the largest completed contract in the last 3 years? A road construction work with MPW/R4D: Road rehabilitation of Marobo-Bee Manas toad of 2.5 km with total contract price US\$ 350,000
How will the company manage risk, such as the absence of workers, heavy rain, slow progress, etc? If there will be shortage of labour in the area, the company will coordinate with the local authority to bring labour from other village near- by. The company will provide staff who have been trained in LBT and provide equipment and material according to the plan in order to make progress as plan. By this mean if the progress is matched to the plan so risk of rain will be low.
How will the company ensure that it complies with the contract – contractually, technically, financially? -Technical matter: The company will provide all staff listed in the bid document that who have been trained in LBT. Quality control to test material like gravel test on CBR, and grading envelop test, compression strength test for concrete and field test on mixing mortar concrete mix and cement mortar mix -Financial: The company has enough capital to start with. The company will for interim payment when there will be significant progress in order to have enough fund for making further progress. If there will be some delay of payment, the company have already contacted to a Bank to loan. The company will manage financial record for all in and out cash flow to avoid miss management of the cash by using knowledge gained from the training.
What contracts has the company previously completed for the Government? The company has complete a road contract of the PIDP in Boboro district with the contract amount of US\$ 150,000

Form T10 – Organisation chart

The Bidder should include an Organisation Chart showing the relationship between the Director, the Engineer/Supervisor and the administration staff.



Form T11 – List of staff

The names of the Director, all technical staff and an administrator should be included in the table. CVs for the Director and all technical staff should be completed using forms T12 and T13.

The contractual requirements are given below. If the contractor does not comply with the requirements, penalties may be imposed or the contract may be terminated.

Rehabilitation contracts

- The Director is available by telephone from 7 am to 7 pm every day
- One Engineer is working on the contract full time until completion
- Two Supervisors are working on the contract full time until completion

Maintenance contracts

- The Director is available by telephone from 7 am to 7 pm every day
- One Engineer or Supervisor is working on the contract full time until completion
- If pavement or structural work is carried out in 2 locations at the same time, an additional supervisor should be employed

Position	Name	Notes
Director	Maria	CV to be included in Form T12
Engineer	Andre	CV to be included in Form T13
Supervisor	Aderito	CV to be included in Form T13
Supervisor	Afonso	CV to be included in Form T13
Administrator in office	Lita	

Form T12 – CV of Director – all parts of the CV must be completed

Name of Bidder

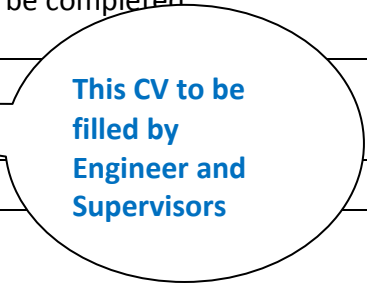
This CV to be
filled by
Director

Position	Director		
Personal information	Name	Date of birth	
	Professional qualifications		
Present employment	Name of employer		
	Address of employer		
	Telephone	Contact (manager / personnel officer)	
	Fax	E-mail	
	Job title	Years with present employer	

Summarize professional experience, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From mm-yy	To mm-yy	Duration of Services (No. of months or years)	Position	Company / Project / Employer / Relevant technical and management experience

Form T13 – CV of Engineer/Supervisor – all parts of the CV must be completed

Name of Bidder		 This CV to be filled by Engineer and Supervisors
Position	Engineer/Supervisor	
Personal information	Name	Date of birth
	Professional qualifications	
Present employment	Name of employer	
	Address of employer	
	Telephone	Contact (manager / personnel officer)
	Fax	E-mail
	Job title	Years with present employer

Summarize professional experience, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From mm-yy	To mm-yy	Duration of Services (No. of months or years)	Position	Company / Project / Employer / Relevant technical and management experience

Form T14 – Work programme

The Bidder should include a work programme, divided into weeks, showing when the activities in the BoQ will be carried out and completed within the contract period. The work programme should show which activities must be completed before others can be started and should take into account expected delays such as rains.

(this is only sample of the work program)

No.	Description	Works					Aug-14				Sep-14				Oct-14				Nov-14				Dec-14				Jan-15			
		Unit	Qty.	Wds	Bid price. \$	%	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	General Item	Ls	1	10	3670	2.8	5																							5
	ROAD WORKS																													
2	Bush cutting, grass clearing and grubbing	m ²	15,400	193	2,772	2.1	77				77			38																
3	Fill for leveling from borrow within 150 m	m ³	575	479	5,261	4.0					239			240																
4	Fill to form camber from borrow within 150 m	m ³	1,000	833	9,151	7.0								417				416												
5	Gravel surface (12-15 cm)	m ³	1,125	281	21,307	16.3																	140			141				
6	Stone masonry lined drain (1,050m)	m ³	325	650	34,450	26.4					216			217				217												
7	Gablon	m ³	220	220	14,850	11.4					55			20				20				20								
8	SLAB CULVERT (11 locations)			550	23,466	18.0					137			137				138				138								
9	DRIFT (1)			120	15,487.00	11.9												40				40				40				
10	Project sign boards	No	1	5	70	0.1																					5			
11	Guide posts installation and painting	No	4	5	120	0.1																					5			
TOTAL WORKS				3346	130,604	100.0																								
WDs per Month							82.0				724.0			1069.0				831.0				338.0				181.0				
WDs Cumulative							82.0				806.0			1875.0				2706.0				3044.0				3346				
Monthly progress (In %)							2.5				21.6			31.9				24.8				10.1				5.4				
Cumulative progress (In %)							2.5				24.1			56.0				80.9				91.0				100.0				

Form T15 – Statement of work management

This form should be completed to show how the contractor will plan and manage the work.

What activities will be carried out during mobilization? How long will mobilization take?	Mobilization activities include: (i) establishment of site camp, (ii) mobilize of equipment lime: trucks, water bowzer,, roller, concrete mixtures, concrete vibrator, and hand tools, (iii) supply construction material like; cement, sand, stone, aggregate, steel bars (iv) recruitment of labors, (v) process of insurance for labour and personnel... This activities will take for 2 week before commencing the physical work and continue till end of the project.
What activities will be carried out by labour? What activities will be carried out by equipment? What equipment will be used?	Activities to be carried out by labour are: (i) setting out, clearing, leveling, side excavation, Forming camber, gravel spreading. (ii) drainage structures: collection of stone, sand, construct lined drain, culvert, and drift. Activities to be carried out by equipment are: (i) truck to transport all construction material like sand, stone, cement, steel bars, gabion basket, (ii) roller for compacting of earth work and gravel, (iii) water bowzer to do watering during compaction activity is carried out. (iv) excavator to excavate gravel in the quarry. Equipment to be used are: truck(s), roller, water bowzer, excavator (where gravel quarry difficult to carried out by labour), concrete mixture(s)
What safety measures will be used to protect the workers? What safety measures will be used to protect members of the public?	To protect workers to use: (i) safety gears like: boot for concrete work, hand gloves, face mask, helmet where working under falling objects, eye goggles where breaking rocks. (ii) to provide clean drinking water for worker, (iii) first kin on site. Where working in many traffic worker to ware bright jacket, where many dust area to spray water. To provide traffic sign mention “ Work in progress”
What are the main hazards to the environment during this work? What measures will be used to protect the environment from these hazards?	Main hazard to environment are: Clearing activity like tree cutting, taking gravel from quarry, cutting hill to widen road width..etc To protect the environment from hazard are: try to avoid realign to the road, reduce cutting tree from road formation, planting grass or tree where hill slope has been cut, to restore the quarry by level and slope then planting tree and grass after slopping.
How will quality be guaranteed during the work? What are the most important measures to take to guaranteed quality?	The quality of work granted by: close supervision of each activity. Control all activities as listed in the training like: road work: use string line to control level of and width of road and layer to be filled. Ensure the work is up to required quality before allow next activity is carried ensure. To control to road work by using: camber board, ditch template, DCP for compaction test. Gravel to be sent to lab testing before using. For concrete and masonry work: field test by using gauging box for measuring concrete, spade test and slump test for mixing concrete and mortar. Compression strength test for major concrete work like concrete slab. The most importance measure to take guaranteed of quality are: compaction of graveling work, quality of gravel, concrete test for structure: like slump test and compression strength test.
How will the defect liability period be managed?	During the defect liability period to regular visit the road especially after the rain and take immediate activity where the road section and structure have appeared defect by repairing the defect. If the work damaged cause by natural disaster to report immediate to the MPW and R4D for taking further action.

How will routine maintenance be arranged and managed?	Routine maintenance will be carried out immediate after completion of the work. To recruit routine maintenance team to carried out the routine maintenance activity like: remove land slide, clean drainage, cutting bush from road formation and clearing grass from road carriage way. The routine maintenance will be recruited locally by using vicinity community. 1-2 maintenance workers will be deployed for maintaining their specific road section.
How will supervision be arranged if the contract includes more than one road?	If there will be more than 1 road, we will recruit additional supervisory like engineer and supervisor staff and supporting staff to provide logistic support. To director will regular visit all contract but give more attention to the bigger contract.

EXAMPLE ONLY

Form T16 – Statement of equipment availability

This form should be completed to show that adequate equipment will be available.

HAULAGE What activities require haulage equipment? What arrangements will be made for trucks and other haulage equipment? List the equipment that will be used. Is the equipment owned or hired?	Activities required hauling equipment(trucks) are: (i) transport material for drainage structures like cement, steel bars, gabion basket, geotextile, stone, sand and aggregate. (ii) Transport material for road work like gravel. The arrangement of trucks: (i) for the rented truck. Use log book and material delivery sheet to daily control of the truck using. The truck will be paid based on number of trip made per day. (ii) for the truck own by the company to use log book to control the fuel daily usage of the truck. (to fill number of truck that you will use for this work and detail of the truck like: plate number, capacity, model..) (to fill number of truck owned by you and number of truck to be rented)
COMPACTION What activities require compaction equipment? What arrangements will be made for compaction equipment? List the equipment that will be used. Is the equipment owned or hired?	Activity required compaction equipment are: compaction of leveling activity, compaction of filling layer for road formation, compaction of cambering activity, compaction of graveling, compaction of road base for concreting surface and compaction for Penmac surfacing work The arrangement of compaction equipment like roller and water bowzer: Use log book to daily control of using of the equipment 1 roller of (fill detail of the roller like: plate number, capacity, model..) and 1 water bowzer (fill detail of the roller like: plate number, capacity, model..) (to fill whether the roller owned by you and water bowzer)
EXCAVATION What activities require excavation equipment? What arrangements will be made for excavation equipment? List the equipment that will be used. Is the equipment owned or hired?	Activity required excavation equipment are: excavate gravel in the quarry. The arrangement of excavator is: Use log book to daily control of working hour. A worker is deployed to control the working hour. 1 excavator (fill detail of the roller like: plate number, capacity, model..) (to fill whether the excavator owned by you)
CEMENT MIXING What activities require cement mixing equipment? What arrangements will be made for cement mixing equipment? List the equipment that will be used. Is the equipment owned or hired?	Activity required cement mixing: mixing concrete for culvert, drift, plump concrete surfacing, mixing mortar for stone masonry work of lined drain construction and culvert wall. The arrangement of the cement mixing is: Use log book to daily control of working hour 1 or 2 cement mixtures. (fill detail like: plate number, capacity, model..) (to fill whether the cement mixture owned by you)
OTHER EQUIPMENT	

What other equipment will be used?	N/A
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EXAMPLE ONLY

Form T17 – Statement of material sourcing

This form should be completed to show that adequate materials will be available.

GRAVEL Is gravel required for this work? What arrangements will be made to obtain gravel? How will the quality of the gravel be guaranteed? How far away is the source of the gravel?	Yes gravel is required for gravel wearing course The gravel will be taken from a quarry near-by. We have communicated with local authority for taking the gravel. The gravel will be taken by using excavator and transport by dump trucks. A sample of the gravel will be sent to Lab for quality testing. Once the required quality is met this gravel quarry will be used. Distance from the gravel quarry to the road site iskm
RAI-HENEK Is rai-henek required for this work? What arrangements will be made to obtain rai-henek? How will the quality of the rai-henek be guaranteed? How far away is the source of the rai-henek?	Yes sand is required for mixing mortar for stone masonry work and concrete work for the construction drainage structures The sand will be taken from a river quarry near-by (name of the river...). We have communicated with local authority for taking the sand. The sand will be collected by community and we will buy the sand from the community. The sand transport by dump trucks. A sample of the gravel will be tested to ensure grading and cleanness. Once the required quality is met this sand quarry will be used. Distance from the sand quarry to the road site iskm
STONES Are stones required for this work? What arrangements will be made to obtain stones? How will the quality of the stones be guaranteed? How far away is the source of the stones?	Yes stone is required for construction of drainage structures like lined drain, culvert, drift. The stone will be taken from a quarry near-by (name of the place.....). We have communicated with local authority for taking the stone. The sand will be collected by community and we will buy the stone from the community. The stone will be transported by dump trucks. A sample of the stone will be tested to ensure size, hardness and cleanness. Once the required quality is met this sand quarry will be used. Distance from the sand quarry to the road site iskm
CEMENT / STEEL Are cement /steel required for this work? What arrangements will be made to obtain cement / steel? How will the quality of the cement / steel be guaranteed? How far away is the source of the	Yes cement and steel bars are required for construction of drainage structures like lined drain, culvert, drift, small bridge. The cement and steel bars will be taken from a store in Dili (name of the shop.....). We have made an agreement with the supplier to supply these material. These material will be transported to the site before the activities started. A sample of the material will be shown to the PW/R4D engineer to ensure that the quality is accepted before transporting the location. Distance from the shop to the road site iskm

cement / steel?	
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EXAMPLE ONLY

Form T18 – Statement of local development

This form should be completed to show how the contractor will support local communities.

Which materials, tools and equipment will be obtained from local communities and businesses?	Material will be obtained from local community are: stone, sand, gravel wood for formwork..etc Tools to be obtained from community are: hoes and handle, bush knives and handle, rake or spreaders and handles, wheel barrow, shovels and handles..etc
Will agreements be signed with the local communities for materials and labour?	Agreement will be signed with community to collect and supply the material like stone and sand. Labour will also be recruited locally and internal agreement will be signed with the community.
How many skilled workers will be employed from local communities?	There will be about 20-30 skill worker recruited locally communities to carried out the construction drainage structures
How will the recruitment of workers from local communities be organised?	Recruitment of the workers will be done in coordination with the local authorities especially with Xefe Aildai and Xefe Suku. Announcement for the recruitment will be done through local radio and post advertisement in the market place, school, and local administration office.
How will workers from local communities be paid?	Un-skill workers will be paid US\$ 4.5 per work-day. The work will be carried out in Task work system. Skill workers like mason and carpenter and setting out team will be paid US\$ 9 per Work-day and semi skill workers will like gang leader will be paid US\$ 7 per work-day.
What training will be given to skilled and unskilled workers from local communities?	Skill workers like mason and carpenter will be trained on the job like: stone masonry work, concrete work, bending steel, prepare and install formwork of the culvert, drift and bridge, setting out the drainage structures, setting out road alignment. Unskill workers will also be trained on the job like: how to carry out the work activities base on their given assignment.
How will female workers be supported? (child care facilities, working near to home, half-day working, etc)	Female workers will supported like: give light activities like clearing grass, spreading gravel. Given some job near to their home and given special assignment like half-day work. To provide child care for whom has small child
How will disabled workers be supported? (appropriate activities, etc)	The disable workers can be supported by giving some special assignment like: repair hand tool, look after the site camp and site store, product wooden pegs for setting out activity.

Form T19 – Agreement with the community

This form should be completed and submitted only if a contract is awarded. It should not be submitted as part of the tender.



REPÚBLICA DEMOCRÁTICA DE TIMOR-LESTE

Ministério das Obras Públicas

This Agreement outlines the arrangements between:

- | | |
|---|---|
| 1. The Contractor:
Maria
represented by its Director. Hereafter called the "CONTRACTOR". | 2. The Community/Communities
Xefe: Amadio
represented by its Suco Chief and by Aldeia Chiefs. Hereafter called the "COMMUNITY" |
|---|---|

This Agreement will become effective only when the CONTRACTOR has been awarded the Contract:

The Following has been agreed:

1. The Contractor will recruit the unskilled labour from the Community.
2. The Contractor estimates that he/she will need from the community the following number of workers: **120**
3. The Community agrees to provide to the Contractor the following number of full time workers:
Men: 80 _____ **Women: 40** _____ **Total: 120** _____
4. The Contractor can recruit workers from other Sucos whenever the Community can not provide the required number of unskilled workers.
5. The Contractor will primarily buy materials from the community.
6. The Contractor can bring materials from outside of the community if the Community can not provide the required materials, or if the materials offered by the community are of unacceptable quality or price.

SEEN and AGREED BY:

For the CONTRACTOR:

Maliana Town Unip Lda

Signature: *Mariamaria*

Name: **Maria**__

Position: Director

Date: **15 April 2015**

For the COMMUNITY

Town

Signature: *Amadiomadio* **Maliana**

Name: **_Amadio_**

Position: Chief Suco

Date: **15 April 2015**

Signature: *_ Amadiomadio*

Name: Domingoe

Position: Aldeia Chief

Date: **15 April 2015**

Signature: *Amadiomadio*__

Name: amnuel

Position: Aldeia Chief

Date: **15 April 2015**_

EXAMPLE ONLY

Form F1 – Front cover

Financial Proposal

District: **Bobonaro**

Sub-District: **Balibo**

Road name: **Balibo-Leohitu**

Km: **2.5 km**

Contract reference: **MPW/R4D xxxxxxxxxxxxxxxxx**

Name of contractor: **Maliana Town Unip Lda**____

Address of contractor: **Maliana, Bobonaro town**_

Telephone number: **77327999**_

Form F2 – Bid form

Rural Road Works for Road [name of the road], km x+xxx to x+xxx

Sub-District [name], District [name]

To: General Director of Corporate Service, Ministry of Public Works, Government
of the Democratic Republic of Timor Leste

Gentlemen:

1. Having examined the Conditions of Contract, Specification, Drawings, Bill of Quantities and Addenda Nos. **MPW/R4D xxxxxxxxxxxx** for the execution of the above-named Works we, the undersigned, offer to execute and complete such Works and remedy any defects therein in conformity with the Conditions of Contract, Specification, Drawings, Bill of Quantities and Addenda for the sum(s) of

US\$ 132,875_ in words (US\$ One hundred Thirty One thousand Eight hundred and Seventy Five only)

or such other sums as may be ascertained in accordance with the said Conditions.

2. We acknowledge that the Contract Data forms part of our Bid.

3. We undertake, if our Bid is accepted, to commence the Works on the Start Date as stipulated in the Contract Data, and to complete the whole of the Works comprised in the Contract within the time stated in the Schedules.

4. We agree to abide by this Bid for the period of ninety (90) days from the date fixed for receiving the same, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

5. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.

6. We understand that you are not bound to accept the lowest or any Bid you may receive.

Dated this 15 day of April 2015

Signature *Mariamaria* in the capacity of **Director**

duly authorized to sign Bids for and on behalf of **Maliana Town Unip Lda**_____

Address **_Malian Town, Bobonaro_**

Witness **_Mr. Fernando_**

Address, Occupation : **Maliana Town , Bobonaro,**

Form F3 – Bill of Quantities

The BoQ template in Volume 2 should be completed with unit rates (analysed using Form F4) and totals. Some prices are included in the BoQ (insurance, relocation of services, etc) and should be left unchanged.

Preamble

1. The BoQ shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Technical Specifications and Drawings.
2. The quantities given in the BoQ are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work instructed and completed, as measured by the Contractor and verified by the Engineer and valued at the prices in the contract BoQ, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
3. The rates and prices stated in the priced BoQ shall except insofar as it is otherwise provided under the Contract include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, **taxes** and duties together with all general risks, liabilities and obligations set out or implied under the Contract. **Where separate provision has been made in the BoQ for the pricing of certain fixed and time related items, the item must be fully priced within the General and Preliminary section and not distributed throughout work related items included in the other sections of the BoQ.**
4. A rate or price shall be entered against each item in the priced BoQ. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the BoQ.
5. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced BoQ, and where no Items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
6. General directions and descriptions of work and materials are not necessarily repeated or summarised in the BoQ. References to the relevant sections of the contract documentation shall be made before entering prices against each item in the priced BoQ.
7. Provisional Sums included and so designated in the BoQ shall be expended in whole or in part at the direction and discretion of the Engineer.
8. The Works as executed will be measured for payment in accordance with the methods described in the Contract under the various pay items notwithstanding any custom to the contrary. Except where otherwise specified the net measurements or mass of the finished work in place shall be taken for payment but excluding any volume or mass of work in excess of that ordered or specified. The Payment Item in the BoQ refers to the corresponding item number in the Technical Specification, though further details of requirements pertaining to that item may be included elsewhere in the Technical Specification.

BILL OF QUANTITY FOR ROAD REHABILITATION						
District: Ermera Sub district: Letefoho Road Name: Letefoho- Length: 2.5 km			Contract length: 2.5 Km Chainage start: 0+000 Chainage End: 2+500			
Item No	Description of works	Unit	Quantity	Unit Rate USD	Total Amount USD	Remarks
1	GENERAL ITEMS					
1.1	Contractor's Establishment	LS	1	1,000.0	1,000.0	
1.2	Insurance (Reimbursable)	LS	1	1,370.0	1,370.0	
1.3	Safety and Health provision	LS	1	500.0	500.0	
1.4	Reinstatement of quarries+other	LS	1	300.0	300.0	
1.5	Material testing	LS	1	500.0	500.0	
	TOTAL- GENERAL ITEMS				3,670.0	
	ROAD WORKS					
2	SITE CLEARANCE					
2.1	Bush cutting, grass clearing and grubbing	m ²	15,400	0.18	2,772.00	
2.2	Remove of Trees	no			-	
2.3	Remove of top soil	m ²		-	-	
2.4	Remove rock from carriage way	m ³			-	
3	EARTH WORKS					
3.1	Cut to spoil-soft soil	m ³	925	5.00	4,625.00	
3.2	Cut to spoil -hard soil	m ³			-	
3.3	Cut to spoil - soft rock	m ³	75	16.0	1,200.00	
3.4	Levelling from cut	m ³	815	7.0	5,705.00	
3.5	Fill for leveling from borrow within 150 m	m ³	575	9.30	5,347.50	
3.6	Fill for leveling from borrow beyon 150 m	m ³				
3.7	Fill to form camber from borrow within 150 m	m ³	1,000	9.50	9,500.00	
3.8	Fill to form camber from borrow beyon 150 m	m ³				
3.9	Fill Embankment	m ³			-	
4	ROAD SURFACING					
4.1	Gravel surface (12-15 cm)	m ³	1,125	19.50	21,937.50	
4.2	Road base	m ³			-	
4.3	Plain concrete surface (12 cm)	m ³			-	
4.4	Plum concrete surface (12 cm)	m ³			-	
4.5	Penetration macadam	m ³			-	
4.6	Telford surface	m ³			-	
	TOTAL- ROAD WORKS				51,087.0	
5	STRUCTURAL WORKS					
	LINED DRAIN AND PROTECTION					
5.1	Stone masonry lined drain (1,050m)	m ³	325	105.00	34,125	
5.1	Stone masonry retaining wall	m ³			-	
5.2	Scour Check	no			-	
5.3	Gabion	m ³	80	68.00	5,440	
5.4	Geotextile	m ²	-		-	
	SLAB CULVERT (80x80x5m, 9 locations)					
5.1	Stone masonry	m ³	85	105.00	8,925.00	
5.5	Concrete of mix proportion (1:3:6)	m ³	2	225.00	405.00	
5.6	Concrete of mix proportion (1:2:4)	m ³	10	250.00	2,475.00	
5.7	Concrete of mix proportion (1:1.5:3)	m ³			-	
5.8	Reinforcement steel bar	kgs	1,145	2.16	2,473.20	
5.9	Formwork and support	LS	1	540.00	540.00	
5.10	Excavation for structure	m ³	90	5.00	450.00	
5.11	Demolish existing structure	LS	-		-	
5.12	Construction of detour road	LS	1	540.00	540.00	
5.13	Back fill for structure	m ³	45	9.00	405.00	

Item No	Description of works	Unit	Quantity	Unit Rate USD	Total Amount USD	Remarks
	SLAB CULVERT (80x80x6m, 1 locations)					
5.1	Stone masonry	m ³	12.0	105.00	1,260.00	
5.5	Concrete of mix proportion (1:3:6)	m ³	0.50	225.00	112.50	
5.6	Concrete of mix proportion (1:2:4)	m ³	1.50	250.00	375.00	
5.7	Concrete of mix proportion (1:1.5:3)	m ³			-	
5.8	Reinforcement steel bar	kgs	145	2.16	313.20	
5.9	Formwork and support	Ls	1	60.00	60.00	
5.10	Excavation for structure	m ³	10	5.00	50.00	
5.11	Demolish existing structure	Ls	-		-	
5.12	Construction of detour road	Ls	1	60.00	60.00	
5.13	Back fill for structure	m ³	5	9.00	45.00	
	SLAB CULVERT (60x60x5m, 1 locations)					
5.1	Stone masonry	m ³	7.0	105.00	735.00	
5.5	Concrete of mix proportion (1:3:6)	m ³			-	
5.6	Concrete of mix proportion (1:2:4)	m ³	1.00	250.00	250.00	
5.7	Concrete of mix proportion (1:1.5:3)	m ³			-	
5.8	Reinforcement steel bar	kgs	105	2.16	226.80	
5.9	Formwork and support	Ls	1	60.00	60.00	
5.10	Excavation for structure	m ³	7	5.00	35.00	
5.11	Demolish existing structure	Ls			-	
5.12	Construction of detour road	Ls	1	60.00	60.00	
5.13	Back fill for structure	m ³	4	9.00	36.00	
	DRIFT (SIZE: 4mx30m, No=...1., Chainage 2+214)					
5.1	Stone masonry	m ³	20.0	105.00	2,100.00	
5.5	Concrete of mix proportion (1:3:6)	m ³			-	
5.6	Concrete of mix proportion (1:2:4)	m ³	18.0	250.00	4,500.00	
5.7	Concrete of mix proportion (1:1.5:3)	m ³			-	
5.8	Reinforcement steel bar	kgs	105.0	2.16	226.80	
5.10	Excavation for structure	m ³	25.0	5.00	125.00	
5.11	Demolish existing structure	Ls			-	
5.12	Construction of detour road	Ls			-	
5.13	Back fill for structure	m ³	20.0	9.00	180.00	
5.3	Gabion	m ³	20.0	68.00	1,360.00	
5.4	Geotextile	m ²	-		-	
4.2	Road base (Stone base)	m ³	20.0	49.0	980.00	
	TOTAL- STRUCTURAL WORKS				68,928.50	
7	ROAD FURNITURE					
7.1	Project sign boards	No	1	70	70	
7.2	Traffic sign boards	No				
7.3	Guide posts installation and painting	No	4	30	120	
	TOTAL- ROAD FURNITURE				190.00	
	GRAND TOTAL				123,875.50	

Form F4 – Breakdown of unit prices

A unit price analysis sheet should be completed for all activities in the BoQ. The cost of each activity should be divided between labour, tools and equipment, and materials. The calculated unit prices should be the same as those in the BoQ.

UNIT PRICE ANALYSIS						
Project :						Works Item No.
Project Code	M27018351809					5.1
Location :						Gravelling
Work Item:	Road surface Graveling, all complete					Unit - 1 M3
No	Description	Unit	Task Rate	Productivity	Unit Price (US\$)	Amount (US\$)
A	LABOUR					
1	Skill labour for Setting Out (25%)	M ³	30	0.00833	9.0	0.075
2	Unskilled Labour - digging	M ³	1	1.00000	4.5	4.500
3	Unskilled Labour - loading	M ³	6	0.16667	4.5	0.750
4	Unskilled Labour - spreading and leveling	M ³	3.15	0.31746	4.5	1.429
5	Semi Skilled labour(Gang Leader)	M ³	84.58	0.01182	7.0	0.083
	Sub Total					6.836
B	TOOLS/EQUIPMENT					
1	Hand Tool (5% of item A)	%				0.342
2	Pedestrian Roller	M ³	73.5	0.0136	\$ 100	1.361
3	Water browser with fuel and operator	M ³	73.5	0.0136	\$ 90	1.224
4	Light Truck 3 m3 capacity	M ³	21	0.0476	\$ 90	4.286
	Sub Total					7.213
C	MATERIAL					
		Unit	Quantity		Rate	
1	Sub base course materials (65 mm down,) either from quarry or river bed materials	M ³				0.000
	Sub Total					0.000
D	SUM OF LABOUR,EQUIPMENTS AND MATERIAL (A+B+C)					14.049
E	CONTRACTOR'S OVERHEAD, RISK AND TAX (19.4% x D)					2.725
F	WORK UNIT PRICE (E+F)					16.774
Notes :						
1. Task rate is based on the soil type.						
2. Unit cost for skill labour , unskilled labour and semi skilled labour based on the government rate						
3. Unit cost of equipment's are based on hiring rate per hour/per day						
4. All cost belong to all of expenditures of related tax, and other cost to complete the work item						

To do this
analyze for all
work items list
in the BOQ

Form F5 – Advance payment guarantee (required only if a contract is awarded)

Bank Guarantee for Advance Payment

_____ [Bank's Name, and Address of Issuing Branch]

Beneficiary: _____ [Name and Address of Employer]

Date: _____

ADVANCE PAYMENT GUARANTEE No.: _____

**To be filled by
the bank
before receiving
advance**

We have been informed that [name of Contractor] (hereinafter called "the Contractor") has entered into Contract No. [reference number of the contract] dated ____ with you, for the execution of [name of contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum [amount in figures] (_____) [amount in words] is to be made against an advance payment guarantee.

At the request of the Contractor, we [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [amount in figures] (____) [amount in words] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number _____ at _____ [name and address of Bank].

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the ____ day of _____, 20____, ** whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

[signature(s)]

Form F6 – Performance guarantee (required only if a contract is awarded)

(Alternative 1): Performance Bank Guarantee (Conditional)

To be filled the
bank after
signing the
contract

This Agreement is made on the [day] day of [month], [year] between [name of Guarantor] (hereinafter called "the Guarantor") of the one part and [name of Employer] (hereinafter called "the Employer") of the other part.

Whereas

- (1) This Agreement is supplemental to a contract (hereinafter called the Contract) made between [name of Contractor] of [address of Contractor] (hereinafter called the Contractor) of the one part and the Employer of the other part whereby the Contractor agreed and undertook to execute the Works of [name of Contract and brief description of the Works] for the sum of [amount in Contract currency] being the Contract Price; and
- (2) The Guarantor has agreed to guarantee the due performance of the Contract in the manner hereinafter appearing.

Now therefore the Guarantor hereby agrees with the Employer that upon receipt of

- (1) a written notice to the Guarantor from the Contractor, or
- (2) a written notice to the Guarantor from the Adjudicator, or
- (3) a binding arbitration or Court award confirming that the amount of the Guarantee is payable to the Employer,

the Guarantor will indemnify and pay the Employer the sum of [amount of Guarantee] [amount in words], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, provided that the Employer or his authorized representative has notified the Guarantor to that effect and has made a claim against the Guarantor not later than the date of issue of the Defects Liability Certificate.

The Guarantor shall not be discharged or released from his Guarantee by an arrangement between the Contractor and the Employer, with or without the consent of the Guarantor, or by any alteration in the obligations undertaken by the Contractor, or by any forbearance on the part of the Contractor, whether as to the payment, time, performance or otherwise, and any notice to the Guarantor of any such arrangement, alteration, or forbearance is hereby expressly waived.

Given under our hand on the date first mentioned above.

Signed by _____

for and on behalf of the Guarantor in the presence of _____

Signed by _____

for and on behalf of the Employer in the presence of _____

(Alternative 2): Performance Bank Guarantee

_____ *[Bank's Name, and Address of Issuing Branch or Office]*

Beneficiary: _____ *[Name and Address of Employer]*

Date: _____

PERFORMANCE GUARANTEE No.: _____

We have been informed that *[name of Contractor]* (hereinafter called "the Contractor") has entered into Contract No. *[reference number of the contract]* dated with you, for the execution of *[name of contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we *[name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[amount in figures]* (_____) *[amount in words]*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire no later than twenty-eight days from the date of issuance of the Taking-Over Certificate, calculated based on a copy of such Certificate which shall be provided to us, or on the ____ day of _____, 2____, ** whichever occurs first. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.

[signature(s)]

Annex 6: Fuel stock record

REGISTRO BA IHA STOK COMBUSTIVEL

Ba fulan:.....

Estrada:.....

Distrito:.....

Loron/data:.....

<i>Deskrisaun</i>	<i>Transitado</i>	<i>Simu iha fulan ida ne'e</i>	<i>Uza ona iha fulan ida ne'e</i>	<i>Fulan ne'e lakon hira</i>	<i>Transitado ba fulan oin</i>	<i>Remarks</i>
Gazoiel						
Gasolina						
Oli mesin						
Masa						
Oli Hydraulic						
Oli Travaun						

Preapara husi official kampu

Verifika husi: Egenheiro de Kampu

EA

[illegible]

Annex: 9 Material delivery sheet

Materials delivery Control Sheet (one control sheet for each truck)								
Contractor: Libra		Contract No: ERA-SC-12-0228		Contract Name: Lauana-Leimea Leten Section 01		District: Ermera		
Sub-contractor: Materials Lda (1)		Material, source (km): Stone, Cailaco River 15km		Planned qty/trip: 2.5 m3		Planned qty per day: 25m3		
Date (fill even if no supply)	Time	Truck dimension (average height of load)			Qty (m3)	Driver Signature	Supervisor Signature	Breakdown Rain, etc
		Length	Width	Height (aver.)				
1-Jul-13	8.3	3	1.5	0.5	2.25	Jose	Andre	
1-Jul-13	10.3	3	1.5	0.4	1.8	Jose	Andre	
1-Jul-13	13.15	3	1.5	0.3	1.35	Jose	Andre	Rain
2-Jul-13	-	-	-	-	-	Jose	Andre	Rain
3-Jul-13	8.3	3	1.5	0.6	2.7	Jose	Andre	
3-Jul-13	10.2	3	1.5	0.5	2.25	Jose	Andre	
3-Jul-13	12.45	3	1.5	0.5	2.25	Jose	Andre	
3-Jul-13	14.3	3	1.5	0.4	1.8	Jose	Andre	
3-Jul-13	16	3	1.5	0.5	2.25	Jose	Andre	
4-Jul-13	8,30	3	1,5	0,5	2.25	Jose	Andre	
4-Jul-13	11	-	-	-	-	Jose	Andre	Breakdown
9 trips/4 days	summary no of trips / no of days				18.9 m3	summary quantity		

Annex: 10 A sample of agreement for equipment renting

COMPANY LETTER HEAD

Service Agreement for supply of [gravel]

This Service Agreement is made on [insert date] between the Client [insert name and address] and the Service Provider [insert name of and address] for the [insert service] to road construction project [insert name of the road and location] during the period [insert to and from date].

Details of service

The Service Provider shall deliver [gravel] from an approved quarry [insert name of the quarry] to the Client's project site [insert name of the road] with an average hauling distance of [insert no of km]. The details of service is described below:

Type of equipment and reg no	Truck: TLS 52, Truck TLS-53
Fuel provided by	[insert name of Service Provider/Client]
Driver/operator provided by	[insert name of Service Provider/Client]
Maintenance and repair by	[insert name of Service Provider/Client]
Quantity per trip	Minimum 2.5 m ³
Estimated number of trips per day (min.)	10 trips/truck
Estimated quantity of gravel delivered per month (min.)	1,200 m ³
Estimated total gravel quantity per Agreement	3,600 m ³
Insurance of equipment and drivers/operators by*	[insert name of Service Provider/Client]
Agreement start and end date	___/___/___ - ___/___/___
Cost per trip	US\$ 35

**NB the Service provider is responsible for the security and safe operation of the equipment, and is fully responsible for any loss or damage and for the well being of the driver/operator or any other personnel he or she has recruited.*

Terms of payment

Payment will be made on a monthly basis, within 30 days of invoice, based on approved number of trips recorded in the "materials delivery form". A sample of the *materials delivery form* is attached to this agreement.

The *materials delivery form* must be signed by both Driver and Client's representative for each trip of material delivered. Payment by the Client will be based on the number of trips delivered.

Notices

Services of all notices under this Agreement shall be sufficient if given in writing to the party involved at its respective address (as indicated above). If any party wish to terminate this Agreement before the stated end date, the party shall give a minimum of one week written notice to other party.

Both parties agree to the services and conditions described above by signing this agreement.

Signed on behalf of Client	Signed on behalf Service Provider	Witness
..... Name: Date:	 Name: Date:	 Name: Date:

EXAMPLE ONLY

COMPANY LETTER HEAD

Service Agreement for hiring equipment

This Service Agreement is made on [insert date] between the Client [insert name and address] and the Service Provider [insert name of and address] for the [insert service/type of equipment] to road construction project [insert name of the road and location] during the period [insert to and from date].

Details of service

The Service Provider shall provide [2 trucks and 2 drivers] to [transport gravel and provide general support] at Client's project site [insert name of the road]. The trucks provided should be in good condition and available full time for the project. The Client shall provide the fuel. The details of service is described below:

Type of equipment and reg no	Truck: TLS 52, Truck TLS-53
Fuel provided by	[insert name of Client]
Driver/operator provided by	[insert name of Service Provider]
Maintenance and repair by	[insert name of Service Provider]
Work schedule	8 hrs per day and 6 days in any week
Expected capacity	10 trips gravel per day
Breakdown/unsatisfactory performance/no operator	Deduction USD 80 per day no/poor service
Days of no work (eg rain)	Deduction USD 80 per day as per notice*
Insurance of equipment and driver/operator**	Service provider
Agreement start and end date	___/___/___ - ___/___/___
Mobilisation and demobilisation cost (LS) (truck n/a)	US\$ 1,500
Cost per day/month (chose option) per truck	US\$ 80 / US\$ 1,600

*The Client may give one days verbal advance notice to temporarily suspend the services on account of bad weather or other reasons. The Service Provider may chose to accept deduction for days of no work, or decide to give notice of termination.

**NB the Service provider is responsible for the security and safe operation of the equipment, and fully is responsible for any loss or damage and for the well being of the driver/operator or any other personnel he or she has recruited.

Terms of payment

- The client shall, if applicable, pay mobilisation cost of [insert amount] and a deposit upfront of an agreed amount of [insert amount]. The Client shall at the end of the assignment pay demobilisation cost of [insert amount]. The final payment shall be adjusted taking account of the deposited amount.
- Subsequent payments will be made on a monthly basis, within 30 days of invoice, based on the *equipment log book* which must be signed daily by both Driver and Client's representative and attached to each invoice. Payment by the Client will be based on the monthly/daily rate with deductions for days of no work as mentioned in the table above and based on the equipment log book.

Notices

Services of all notices under this Agreement shall be sufficient if given in writing to the party involved at its respective address (as indicated above).

If any party wish to terminate this Agreement before the stated end date, the party shall give a minimum of one week written notice to other party.

Both parties agree to the services and conditions described above by signing this agreement.

Signed on behalf of client	Signed on behalf service provider	Witness
..... Name: Date:	 Name: Date:	 Name: Date:

EXAMPLE ONLY

Services Agreement for supplying gravel

This service agreement made on [insert date] between the service provider [insert name and address] hereby agreed to [insert service] to the client [insert name of and address] for the road construction located at [insert name of the road and location] during the period [insert date].

Details of service:

The client intends that the gravel delivery from an approved quarry [insert name of the quarry] to the project site [insert name of the road] of an average hauling distance [.....km] to be executed by the service provider. The details of service is described below:

Provide type of equipment and reg no	Truck: TLS 52, Truck TLS-53
Fuel	Service provider
Drivers/operator	Service provider
Maintenance and repair	Service provider
Quantity per trip	Min. 2.5 m ³
Estimated number of trips per day(min.)	10 trips / truck
Estimated quantity of gravel delivered per month(Min.)	1,200 m ³
Cost per trip	US\$ 35
Commencement date	/.....2015
Completion date	/.....2015
Insurance of equipment and drivers/operators	Service provider

Term of payment

Payment will be made within 30 days of invoice based on approved number of trips recorded in the "material delivery form". The material delivery form is attached in this agreement.

The material delivery form must be signed by both driver and client's representative for each trip of material delivered. Payment by the client will be based on the number of trips delivered.

Notices

All notices under this Agreement shall be sufficient given to the party involved in writing from time to time. If any party wish to terminate this agreement, the party shall give a minimum 1 week written notice to other party.

Both parties agreed to execute the work and sign this agreement herein under.

Signed on behalf of client	Signed on behalf service provider	Witness
.....		
Name: Date:	Name: Date:	Name: Date:

References

Technical Manual for Labour-Based Road Construction Methods, Bjorn Johannessen, MRD-RIIP-IT Transport, Phnom Penh, July 1998.

Bid document of Ministry of Public Work of Timor Leste

Contract Management Manual Upstream Project ILO - CMB/97/M02/SID. Cambodia

EXAMPLE ONLY

Labour-based rural road work manuals for training provided by Don Bosco Training Center



International
Labour
Organization



Training modules developed through the Enhancing Rural Access Project, with technical support from the ILO and funding from the European Union and the Government of New Zealand