HANNA NASSIF

URBAN UPGRADE PROJECT

PHASE II

DAR ES SALAAM, TANZANIA

URT/97/032/A09

Study on Implementation of Community Managed and Labour-Based works using community and private contracts

Consultancy Report

John Clifton
Wilma van Esch

August 2000
# TABLE OF CONTENTS

## LIST OF ACRONYMS

## ACKNOWLEDGEMENTS

1. EXECUTIVE SUMMARY
2. INTRODUCTION
3. PROJECT BACKGROUND
4. OBJECTIVES OF THE CONSULTANCY
5. DESIGN & PROCEDURES
   5.1 Design
   5.2 Design procedures (changes in design) - roles of contracting authorities (UCLAS/NIGP/DCC), community representatives (CDA/CC), consulting engineer (COWI (T) Ltd) and support agency (ILO)
   5.3 Roles of UCLAS, CDA/CC, NIGP, DCC and COWI (T) Ltd in supervision and approval of works
   5.4 Lessons learned
6. WORK PLAN
   6.1 Timing of construction activities
   6.2 Lessons learned
7. TENDERING PROCEDURES (PRIVATE CONTRACTORS & COMMUNITY CONTRACTS)
   7.1 Packaging of works
   7.2 Tender documents
   7.3 Tendering procedures
   7.4 Shadow tendering of community contracts
   7.5 Lessons learned
8. CONTRACTS
   8.1 Works in accordance with community contract specifications
   8.2 Works in accordance with private contract specifications
   8.3 Facilitation of improved work - contract documentation, supervision, training
   8.4 Perceptions of project partners on community and private contracts
      8.4.1 Private Contractors
      8.4.2 CDA
      8.4.3 DCC
      8.4.4 Kinondoni Municipal Council
      8.4.5 NIGP
   8.5 Outputs (actual and estimated) - time period, quality, quantities, costs
   8.6 Profitability - economic and social perspective
   8.7 Lessons learned
9. USE OF LABOUR BASED METHODS & SITE ORGANISATION
   9.1 Work planning and reporting
   9.2 Site organisation
   9.3 Division of work
   9.4 Task rates and payment of labourers
   9.5 Use of tools and equipment
   9.6 Works in accordance with design
   9.7 Purchase and use of materials
   9.8 Earthworks
   9.9 Selection of workers
   9.10 Lessons learned

10. INNOVATIVE TECHNOLOGIES
   10.1 Technologies
   10.2 Lessons learned

11. COMMUNITY MAINTENANCE
   11.1 Background
   11.2 Current situation
   11.3 Funding mechanisms
   11.4 Lessons learned

12. TRAINING PROGRAMME
   12.1 Review of training provided under the project
   12.2 Further training needs
   12.3 Lessons learned

13. IMPACT OF LABOUR BASED COMMUNITY MANAGED WORKS
   13.1 Impact of works on Hanna Nassif residents
   13.2 Impact of works on environment
   13.3 Labour policies and practices
   13.4 Impact of contracts (community and private contractors) upon community
        organisation and negotiation capacity
   13.5 Lessons learned

14. SUMMARY OF OPTIONS AND RECOMMENDATIONS FOR REPLICATION OF
    COMMUNITY MANAGED WORKS
LIST OF ANNEXES

ANNEX 1  TERMS OF REFERENCE
ANNEX 2  ITINERARY
ANNEX 3  PRINCIPAL CONTACTS
ANNEX 4  LIST OF DOCUMENTS REVIEWED
ANNEX 5  WORKPLAN
ANNEX 6  TRAINING
ANNEX 7  PREQUALIFICATION AND SELECTION OF CONTRACTORS
ANNEX 8  CONDITIONS OF CONTRACT (INDICATIVE SHORTER FORMAT)
ANNEX 9  OVERVIEW OF ESTIMATED AND ACTUAL WORKFORCE AND WORKING DAYS
ANNEX 10  OVERVIEW OF ESTIMATED AND ACTUAL CONSTRUCTION COSTS
ANNEX 11  INDICATIVE CHANGES TO CONVENTIONAL FORMS OF CONTRACT
ANNEX 12  COST PER UNIT OF WORKS PER CONTRACT
ANNEX 13  COMPARISON BETWEEN ENGINEERS ESTIMATE, TENDER PRICES, ACTUAL COSTS AND ORIGINAL PROJECT BUDGET
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATU</td>
<td>Appropriate Technology Unit (MOW)</td>
</tr>
<tr>
<td>BOQ</td>
<td>Bill of Quantities</td>
</tr>
<tr>
<td>CBO</td>
<td>Community Based Organisation</td>
</tr>
<tr>
<td>CDA</td>
<td>Community Development Association</td>
</tr>
<tr>
<td>CIP</td>
<td>Community Infrastructure Programme</td>
</tr>
<tr>
<td>CMU</td>
<td>Contract Management Unit</td>
</tr>
<tr>
<td>COWI</td>
<td>Cowi (Tanzania) Ltd: Consulting Engineers and Planners</td>
</tr>
<tr>
<td>CRB</td>
<td>Contractors Registration Board</td>
</tr>
<tr>
<td>CTB</td>
<td>Central Tender Board</td>
</tr>
<tr>
<td>DANIDA</td>
<td>Danish International Development Agency</td>
</tr>
<tr>
<td>DAWASA</td>
<td>Dar es Salaam Water and Sewerage Authority</td>
</tr>
<tr>
<td>DCC</td>
<td>Dar es Salaam City Commission</td>
</tr>
<tr>
<td>ERB</td>
<td>Engineers Registration Board</td>
</tr>
<tr>
<td>GOT</td>
<td>Government of the United Republic of Tanzania</td>
</tr>
<tr>
<td>HQ</td>
<td>Headquarters</td>
</tr>
<tr>
<td>ICB</td>
<td>International Competitive Bidding</td>
</tr>
<tr>
<td>ICE</td>
<td>Institution of Civil Engineers</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organisation</td>
</tr>
<tr>
<td>ILO/ASIST</td>
<td>Advisory Support Information Services and Training – International Labour Organisation</td>
</tr>
<tr>
<td>IPC</td>
<td>Interim Payment Certificate</td>
</tr>
<tr>
<td>km</td>
<td>kilometre</td>
</tr>
<tr>
<td>KMC</td>
<td>Kinondoni Municipal Council</td>
</tr>
<tr>
<td>KTC</td>
<td>Kisii Training Centre, Kenya</td>
</tr>
<tr>
<td>LB</td>
<td>Labour Based</td>
</tr>
<tr>
<td>MOLG</td>
<td>Ministry of Local Government</td>
</tr>
<tr>
<td>MOW</td>
<td>Ministry of Works</td>
</tr>
<tr>
<td>NBC</td>
<td>National Bank of Commerce</td>
</tr>
<tr>
<td>NCC</td>
<td>National Construction Council</td>
</tr>
<tr>
<td>NCB</td>
<td>National Competitive Bidding</td>
</tr>
<tr>
<td>NIC</td>
<td>National Insurance Corporation of Tanzania Ltd</td>
</tr>
<tr>
<td>NIGP</td>
<td>National Income Generation Programme</td>
</tr>
<tr>
<td>PPM</td>
<td>Policy and Procedures Manual</td>
</tr>
<tr>
<td>RTB</td>
<td>Regional Tender Board</td>
</tr>
<tr>
<td>SI</td>
<td>Site Instruction</td>
</tr>
<tr>
<td>TA</td>
<td>Technical Assistance</td>
</tr>
<tr>
<td>TBCA</td>
<td>Tanzania Building Contractors Association</td>
</tr>
<tr>
<td>TCECA</td>
<td>Tanzania Civil Engineering Contractors Association</td>
</tr>
<tr>
<td>TC</td>
<td>Trial Contract</td>
</tr>
<tr>
<td>TOR</td>
<td>Terms of Reference</td>
</tr>
<tr>
<td>TSh</td>
<td>Tanzanian Shilling</td>
</tr>
<tr>
<td>TST</td>
<td>Technical Support Team</td>
</tr>
<tr>
<td>UCLAS</td>
<td>University College of Lands and Architectural Studies</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>USD</td>
<td>United States dollar</td>
</tr>
<tr>
<td>VO</td>
<td>Variation Order</td>
</tr>
<tr>
<td>WB</td>
<td>World Bank</td>
</tr>
<tr>
<td>WEDC</td>
<td>Water, Engineering and Development Centre, Loughborough University</td>
</tr>
</tbody>
</table>
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000

WEO  Ward Executive Officer (DCC)

ROE 1.08.2000 TSh790/1USD

ACKNOWLEDGEMENTS

Grateful thanks are expressed to residents and workers from Hanna Nassif, UCLAS and other individuals met during the course of this consultancy for their support and assistance without which the execution of this assignment would not have been possible.

Particular thanks are expressed, as always to Mpayo Kasure and also to John van Rijn for their participation, advice and logistical assistance.

This report reflects only the views and opinions of the consultants which do not necessarily correspond with those of the Government of the United Republic of Tanzania, UCLAS or ILO/ASIST.
1. EXECUTIVE SUMMARY

This consultancy is to study contracting and labour based works undertaken during Phase II, identify lessons learned and, based upon this experience, draw up a summary of options and recommendations for replication of community managed works elsewhere. This assignment is a follow up to consultancies carried out in October 1998, April 1999 and October 1999 which examined respectively, development of contracts and contracting procedures for small scale labour based contractors in urban upgrading works; packaging, tendering, supervision and programming of the works plus use of labour based technology; and review of tender procedures, documentation and performance of community and private contracts, supervision of works, efficient use of labour based technology plus update of the plan for construction activities; on behalf of Phase II of the Hanna Nassif Project which is executed by UCLAS.

Background

Using LB methods storm water drainage and gravel roads were constructed by the Hanna Nassif community during the first phase of the project. Under Phase II these LB works have been continued in a wider area of Hanna Nassif and the scope of the works has been extended to include water supply, solid waste management and credit schemes. The community-based approach was improved and some of the works were contracted out to Class VII contractors as a means of developing the local small scale contracting industry.

Design and Procedures

The final design by COWI(T)Ltd, the result of a series of consultations with the community facilitated by UCLAS animators, was a usable basis for construction. Some changes were found to be necessary during the course of the works and these were often made unilaterally on site without reference to the designer. Arrangements for supervision, quality control and certification of works were confused as a result of the agreement between COWI(T)Ltd and UCLAS which was unsatisfactory, for different reasons, to both parties.

Work Plan

Detailed programming of the works started some way into the project period but from early 1999 work has been undertaken more or less as programmed although budget cuts in mid-2000 have prevented all works being completed.

Tendering Procedures

Original packaging of works into ‘major’ (private contracts) and ‘minor’ (community contracts) was replaced by a more appropriate distribution that resulted in only 2 private contracts being awarded. Tender documents for private contracts were essentially conventional (FIDC) documents amended to allow for more adequate provision for LB techniques and conditions of work. Community contracts were a simple 2 page agreement. Design drawings, technical specification and BOQ format was common to all contracts. An alternative short format contract for private contracts was considered but not used. Initial pre-qualification of private contractors was unconventional but otherwise tender procedures followed established practice. Shadow tendering of community contracts was implemented but did not lead to the adoption of fully commercial tendering procedures for community contracts.
Contracts

Some additional costs were incurred on community contracts due to items being omitted from the design (eg footbridges over roadside drainage channels). There were significant cost increases on one of the private contracts and the similar community contract involved in gabion construction. In both cases there was major underestimation of materials costs but in the case of the private contract this was compounded by omission of designed work from the BOQ and errors in pricing by the contractor who did not understand the tender conditions. Perceptions of project partners have swung to support of community executed contracts which appear to be significantly cheaper than private contracts for similar works of equal quality.

Use of Labour Based Methods and Site Organisation

Reporting and documentation of site work has been patchy and as-built drawings have not been produced. Site organisation, except for the shortcomings noted above resulting from the COWI(T) Ltd/UCLAS agreement, has generally been good. Task rates were used throughout on community contracts but these same task rates rapidly became piecework on the private contracts. Work quality could and should have been better but in no case was the product less than functional. Community and private contracts produced very similar qualities of work. The community has only been exposed to minor procurement of tools and materials, major procurement having been carried out by UCLAS throughout Phase II. In works of this nature balanced cut and fill is unlikely. Selection of workers appeared to be fair and transparent although balloting was not used.

Innovative Technologies

Although there were some changes in techniques during the course of Phase II, none could really be described as innovative techniques with the possible exception of the gabion works which were being used for the first time in Dar es Salaam in this unplanned urban context.

Community Maintenance

Solid waste collection and drain cleaning is not being carried out well if at all by KIMWODA although some work is being organised by zonal mobilisation in some areas of Hanna Nassif. There is backlog in payment of the agreed 10% ‘profit’ retention on community contracts which was originally intended, inter alia, to fund maintenance; it is also unclear whether, in fact, there is provision to pay this balance at all. There are no current provisions for revenue collection although various possibilities are being considered.

Training Programme

Considerable training has been organised under Phase II but some additional priority training is suggested for water supply, routine maintenance and civic functions.

Impact of Community Managed Labour Based Works

The impact of Phase II on Hanna Nassif residents has been positive bringing benefits in health, amenity, employment generation and skills creation. Impacts on the environment within Hanna Nassif are similarly positive but further action is required to prevent the relentless spread of
solid waste in water courses. Recommended good practice has generally been followed in labour policies and practices and the community has gained institutional confidence and experience during the course of Phase II.

**Replication of Community Managed Works**

Options and recommendations are presented based upon the lessons from the Hanna Nassif experience.
2. INTRODUCTION

This assignment was carried out by John Clifton, Independent Consultant and Wilma van Esch (Technical Advisor, ILO/ASIST) between 17th July and 4th August 2000.

Discussions were held with personnel from UCLAS, ILO (Dar es Salaam), ILO/ASIST (Nairobi), COWI (T) Ltd, DCC, NIGP, Danida, KMC, CDA and Hanna Nassif workers and residents. Hanna Nassif was visited on several occasions and all works completed under Phase I and Phase II were inspected together with incomplete works plus locations of all other work proposed for execution by the community under Phase II.

All available relevant background documentation and reports were reviewed.

The assignment was commissioned by ILO/ASIST in Nairobi in order to study contracting and labour based works undertaken during Phase II, identify lessons learned and, based upon this experience, draw up a summary of options and recommendations for replication of community managed works elsewhere. This assignment is a follow up to consultancies carried out in October 1998, April 1999 and October 1999 which examined respectively, development of contracts and contracting procedures for small scale labour based contractors in urban upgrading works; packaging, tendering, supervision and programming of the works plus use of labour based technology; and review of tender procedures, documentation and performance of community and private contracts, supervision of works, efficient use of labour based technology plus update of the plan for construction activities; on behalf of Phase II of the Hanna Nassif Project which is executed by UCLAS.

The following specific activities were carried out:

- Review and update of recommendations made during previous assignments.
- Review of the roles of project partners in design, design procedures, supervision and approval of works.
- Review of the work plan and actual timing of outstanding works.
- Review of the packaging of works, tender documents and procedures, and shadow tenders for community works including the roles of the project partners.
- Review of constructed works for compliance with specification, time period, quantities, quality and costs (actual and estimated).
- Review of profitability of the works from social and economic perspectives.
- Assessment of the perceptions of various project partners concerning relative advantages of community or contractor execution.
- Assessment of works with respect to labour based methods, work organisation, selection of workers and procurement of construction materials and tools.
- Consideration of innovative (or at least alternative) methods for certain aspects of the works.
- Review of background and current situation regarding maintenance of completed works.
- Review of the training provided under the project and recommendations for other technical training.
- Assessment of the impact of community managed infrastructure works upon the residents of Hanna Nassif and the environment.
- Comment on labour policies and practices during Phase II.
Consultancy on Contracting and Labour Based Works  
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09  
July/August 2000

- Assessment of the impact of contracts (community and private contractor) upon community organisation and negotiation capacity.
- Identification of lessons learned from all Phase II activities.
- Based upon the experiences of Phase II preparation of a summary of options and recommendations for replication of community managed works elsewhere.

Provisional findings and recommendations were discussed with representatives of UCLAS and with ILO (Dar es Salaam). Issues and comments arising from these meetings have been incorporated into this report.

Annexes are attached as follows:

Annex 1 Terms of Reference  
Annex 2 Itinerary  
Annex 3 Principal Contacts  
Annex 4 List of Documents Reviewed  
Annex 5 Work Plan  
Annex 6 Training Outline  
Annex 7 Prequalification and Selection of Contractors  
Annex 8 Conditions of Contract (Indicative Shorter Form)  
Annex 9 Overview of Estimated and Actual Workforce and Working Days  
Annex 10 Overview of Estimated and Actual Construction Costs  
Annex 11 Indicative Changes to Conventional Form of Contract

The draft final document was completed after departure from Tanzania and submitted subsequently to project partners through ILO/ASIST in Nairobi.

3. PROJECT BACKGROUND

The first phase of the Hanna Nassif project supported by UNDP, Ford Foundation, EDF, ILO, UNHCS and UNV demonstrated that upgrading of infrastructure (storm water drainage and access roads) in low income settlements can be successfully carried out by the community, using labour-based methods in partnership with the City Commission backed up by technical advice. The community actively participated in planning, design, implementation and maintenance activities and the works were carried out by small contracts issued to the community for the implementation of the works.

The second phase of the project funded by NIGP, Ford Foundation and UNDP, executed by UCLAS with technical support by ILO, is continuing the works in a much larger area within Hanna Nassif unplanned settlement and extending the scope of works to include solid waste management, drinking water supply and credit schemes. Works have been split into packages most of which have been executed by the community, while others were contracted out to small scale local contractors. Labour based methods were used wherever appropriate.

4. OBJECTIVES OF THE CONSULTANCY

To study community managed contracts and labour based works which have been executed by the Hanna Nassif community and private contractors under Phase II, assess the various impacts of these works, identify lessons learned from this experience and to propose options and recommendations for replication of such community managed infrastructure works elsewhere.

5. DESIGN & PROCEDURES

5.1 Design
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000

The detailed design was undertaken by COWI(T)Ltd and the final design is the product of considerable consultation with the community facilitated by the UCLAS animators in late 1997/early 1998. A series of meetings were held with the community in early 1998 during which the designs were discussed as they were developed. These meetings involved clear explanations of the detail and physical implications of the designs to a non-technical community audience and this interactive process led to a draft final design for the works as a whole. However, there were some initial misunderstandings on the part of the designer as to the main purposes of the works (ie drainage was the priority rather than roads) and also some details required fine tuning to accommodate the intended LB methodology. More seriously some important features were referred back by UCLAS after checks by ILO/ASIST for further investigation with the result that invert levels and drainage profiles were corrected. It was also agreed that designed Outfall Nº4 was redundant and would not be constructed.

The final design was a usable basis for LB construction although, inevitably, some changes were found to be necessary during the course of the construction works (see para 5.2 below) due to changed circumstances (eg construction of new houses since the design was completed) or errors (eg correction to invert levels).

5.2 Design procedures (changes in design) - roles of the contracting authorities (UCLAS/NIGP/DCC), community representatives (CDA/CC), consulting engineer (COWI(T)Ltd and support agency (ILO)

During the course of the works some changes to almost any design are always found to be necessary. After some initial confusion the agreed procedure was that potential design changes would be identified on site by TST/UCLAS site engineers, usually in consultation with CDA. These would be brought to the attention of COWI(T)Ltd with a request to inspect the particular location; following such inspection and agreement to the proposal COWI(T)Ltd would issue approval or ‘no objection’. In practice many minor changes were made unilaterally by TST and few changes have been confirmed in writing.

DCC was not involved in this process, nor were NIGP except in the case of the private contracts (see 8.Contracts below)

5.3 Role of UCLAS, CDA/CC, NIGP, DCC and COWI (T) Ltd in supervision and approval of works

This was an issue of importance for quality assurance and approval of works as a whole. The situation regarding community contract works and private contract works are considered separately preceded by an outline of the duties of the consultant engineer (COWI (T) Ltd) as set out in the contract between UCLAS and COWI (T) Ltd. The terms and conditions of this contract are fundamental to an understanding of these roles and actual events.

- Contract for consultancy services - UCLAS/COWI(T)Ltd

The duties and obligations of COWI(T)Ltd were set out in the contract between UCLAS and COWI(T)Ltd and as recorded in minutes of contract negotiations, any subsequent meetings and the technical proposal by COWI(T)Ltd. COWI(T)Ltd were thus expected to have involvement in the following tasks:
- Survey.
- Design (roads, drainage, water supply) including preparation of drawings.
- Estimation of quantities and preparation of BOQ.
- Preparation of draft tender documents.
- Evaluation of tenders.
Consultancy on Contracting and Labour Based Works  
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09  
July/August 2000

- Certification of completed works.  
- Provision of limited supervision/checking/advice during construction (ie day to day supervision by UCLAS with periodic site visits by COWI (T) Ltd). This latter point is not clear and the general conditions of contract attached to the contract para 6.3g) refer to ‘Attending relevant site meetings and making such other periodic visits to site as the consulting engineer may consider necessary in order to monitor that the works are executed generally in accordance with the drawings and specifications ….. The frequency of site visits shall depend on the performance of the contractor and the site staff, if any, appointed by the consulting engineer; it is recommended that such visits shall be fortnightly for a nearby site and monthly for out-of-station sites. The presence of the consulting engineer shall not relieve the contractor of his responsibility for the correctness of the materials and methods used by the contractor, nor for the safety of the works …..’. There is specific involvement in the issue of Site Instructions and Variation Orders.

• Community Works

Day to day supervision was undertaken by UCLAS (who also planned, organised and controlled the works carried out by the community) with COWI (T) Ltd making periodic site visits during which the work was inspected. For each site visit a report was prepared by COWI (T) Ltd for internal COWI (T) Ltd reference and was not submitted to UCLAS. Despite the apparent approval of works by COWI (T) Ltd, payment for community executed work (except for release of the 10% ‘profit’ to the community upon final acceptance of the works) was not conditional upon this approval as the community-executed works are not contracts in the conventional civil engineering sense (and in practice although a final inspection of works was to be made by COWI(T)Ltd, actual release of the ‘profit’ appeared to be independent of this final acceptance of the works). The role of COWI (T) Ltd thus was more related to quality assurance than to certification of works.

• Private Contract Works

The same supervision regime (day to day supervision by UCLAS, periodic visits by COWI (T) Ltd) was applied to private contracts in which certification and approval of works are a specific prerequisite for payment of the contractor and acceptance of works.

This issue was discussed during the course of a meeting between UCLAS, NIGP and COWI (T) Ltd/Serviceplan on 24.03.99 and the following points were included in the minutes of that meeting:

‘SUPERVISION

According to the contract UCLAS will be responsible for daily supervision and COWI/SERVICEPLAN for a regular check up giving assistance/advice and certification.

The supervision services to be rendered by the COWI/SERVICEPLAN will unless otherwise agreed be limited to what is stipulated in the conditions of engagement. Observation, instruction and recommendations by COWI/SERVICEPLAN will be documented after every site visit.

However, it was also agreed that the supervision part of the contract will be discussed after the evaluation of tenders with the view of improving the conditions, remuneration and mode of supervision. COWI would prefer to change the present contract to be based on man-months (time basis).
NOTE

Following the discussion with SERVICEPLAN and NIGP on 25.03.99 it was agreed that the above mentioned discussion on the adjustment to the contract preferably should be done during the month of April while waiting for the response from the contractors in order to make sure we will be ready by 1.06.99.

It is understood that the discussions on adjustment to the contract scheduled for April 1999 did not take place.

- **Site Instructions, Variation Orders and Certificates**

There was some confusion over the procedures to be followed regarding issue of SIs, VOs and certificates and thus the systems were reviewed and the following procedures and formats were agreed by all parties. Summarising the procedures:

- **SIs and VOs** issued verbally by TST were to be recorded in the Site Instruction book held at Hanna Nassif which would be examined by COWI (T) Ltd on each site visit and signed with any comments. Although a site book was provided, no VOs or SIs are recorded. It must be assumed therefore that the agreed procedures were never actually implemented. If major quantity changes were involved COWI(T)Ltd must be consulted and any necessary VOs would be issued by COWI(T)Ltd. This was the case with the site instructions and variation orders issued for the private contracts (see also 8.Contracts below)

- **Claims for payment** were raised by the contractor and submitted to the Project Manager. TST to check the supporting measurement sheets and valuation and then to pass the documents to COWI(T)Ltd for certification (including inclusion of any VOs). Initially the claims were passed straight to COWI(T)Ltd without checking or comment and were immediately returned for correction. Later claims were checked and signed by TST before submission to COWI(T)Ltd. The document was then returned to UCLAS and submitted under signature of the Project Leader to NIGP requesting payment.

- **Overview**

During most of the construction period the site supervisory staff consisted of UCLAS engineers Mpayo Kasure and Mengisenyi Kaseva (and more recently Mdei Tadee) on a day to day basis with back up by periodic visits by COWI(T)Ltd - in practice Ms Rafia Nshama backstopped by Nils Bakke and Innocent Macha. The split responsibility for supervision and the acceptability of certification of works based upon intermittent visits by COWI(T)Ltd was not ideal.

COWI(T)Ltd continue to claim that the level of COWI(T)Ltd input was greater than expected. Fees allowed for the equivalent of 1.8 person months (3 days per month) for the original project period (ie up to the end of March 2000). It was stated by COWI (T) Ltd in October 1999 that approximately half of this provision had already been expended by the end of September 1999 (although claimed inputs have not been confirmed - any itemised invoices which may have now been presented to UCLAS have not been examined) on supervision activities in connection with community and private contracts. (There were also different perceptions of the actual amount of time spent in these duties by COWI (T) Ltd as expressed by UCLAS and COWI (T) Ltd although the site diary records some 18 hours of site presence by COWI(T)Ltd [and the total site time is estimated to be of the order of 30 hours] during the period 2.03.1999 to 14.04.2000 - see para 9.1 Work planning and reporting also - although there will clearly be some other time expended by COWI(T)Ltd in other activities in their office). The project...
Consultancy on Contracting and Labour Based Works  
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09  
July/August 2000

period was then extended by 6 months to the end of September 2000. Taking the COWI(T)Ltd statement of expended time as at the end of September 1999 at face value there was provision remaining (to end March 2000 (ie end of original project period) for 50% of 18x3 mandays (minutes of negotiation meeting 2 25.11.97 para 1.2 states that ‘…supervision …is to be charged on the basis of 24-man-hours per month …’). Para 3.1.9 D of the contract agreement states that ‘.. the supervision costs will be spread over a period of 18 months ….’) Thus the balance would permit some 27 man days in the period up to 31.03.2000 (or to 30.09.2000 to allow for supervisory coverage to the end of the extended project period). During the period 30.09.1999 to 31.03.2000 12 site visits are recorded of which only 3 time durations are noted - average 35 minutes…..

5.4 Lessons learned

Design

- A practical and accurate design is crucial for success in a construction environment such as Hanna Nassif. An accurate ground survey including levels is a pre-requisite.
- It is important not only that the community understand project aims and implications but also that the designer shares the same vision.
- Quality control and checking of designs is necessary in the difficult situations of urban unplanned settlements.
- Agreement of the designs with the community should be an exercise of designing for a market (ie the community) rather than marketing a design.
- The process of reaching the final design should be a step-by-step participatory process involving explanation of technical detail to a non-technical audience.
- Designs should be cleared with the appropriate municipality even if the settlement is unplanned and outside the reach of normal local government services.
- The designs (and specifications) should be suitable for the construction technology of the project (in this case LB) and it should not be assumed that works constructed by LB methods do not need designs that are less precise or complete than those demanded by other methodologies.
- The designs must be appropriate for the conditions of the unplanned urban settlement (eg non standard road widths to avoid, or at very least minimise, any demolition or relocation).
- Close attention must be paid to any compensation, relocation or any other mitigation measures resulting from the proposals. No community residents must be disadvantaged as a result of the proposed designs.

Design procedures (changes in design)

- Significant design change must not be undertaken without the agreement of the designer.
- Design changes should be recorded.
- It is important that the site management team has the expertise to understand the designs, appreciate when changes are necessary, identify, at least in outline, the necessary changes and assess which changes are minor and may be undertaken on the site and, which require reference to the designer.
- Agreed procedures for design change should be followed.

Supervision and approvals of work

- In the opinion of this consultant the level of supervisory input was not sufficient to ensure adequate control of works contracts (community and contractor) even before the project extension.
It would be desirable for the designer to be involved more fully in supervision and certification of works such that there would be a continuous thread throughout the construction process from design to completion.

A clear, realistic and adequately resourced agreement or arrangement should be drawn up to ensure adequate control of works contracts. This agreement or arrangement should be understood by all parties to the agreement.

Similarly, clear detailed procedures should be set out for measurement, certification and quality control of works including VOs and SIs.

The quality of the site management team is a major factor in success of this kind of project.

Funding agencies must be consulted before contractual commitments are made which lead to cost increases.

6. WORK PLAN

6.1 Timing of construction activities

Early works were carried out on an ad hoc basis but in April 1999 a detailed workplan was prepared for all outstanding project works based upon the packaging of works as set out in ‘Tender Documents for Major Works: March 1999: COWI(T)Ltd as subsequently modified by UCLAS. A premise of this workplan was that in order to satisfactorily manage and supervise the community executed works, no more than 2 community work fronts should be concurrently operational and that private contracts should be phased in singly (ie a maximum of 3 work fronts at any one time). This workplan indicated that it would not be possible to complete all project works within the project period which ended in March 2000. An extension of at least 3 months was suggested and an extension was subsequently granted of 6 months extending the project period until the end of September 2000. In case this extension had not been possible, an alternative workplan was produced which required more works to be carried out by private contractors, although again, care was taken that site management staff were not overloaded by too many concurrent work fronts. This workplan was updated in October 1999.

Despite combination of some packages, work has been undertaken more or less as planned and within the planned contract periods although recently budget cuts have prevented construction of some work packages.

6.2 Lessons learned

- Works should be programmed in logical sequence and with regard to the capacity of the site management team to adequately control and supervise the works.
- Progress of community contracts is not significantly different from private contract works.
- Packaging of work should be a flexible and pragmatic process as the project progresses so as to be responsive to increasing community capacity and changing project circumstances.
- Planning should allow a realistic period for long lead-in times for tender procedures for private contracts.
- There is often pressure to accelerate the progress of works for financial or other reasons. Rushed preparation or construction works are likely to produce an inferior product.

7. TENDERING PROCEDURES (PRIVATE CONTRACTORS & COMMUNITY CONTRACTS)

7.1 Packaging of works

Initially it was proposed that the works designed for Phase II as a whole were divided into ‘major’ and ‘minor’ works. ‘Major’ works were to be undertaken by contractors. ‘Minor’
works were to be undertaken by the community. This packaging was on the basis of task rather than work section (eg if fill on road exceeds 2cum/m length of road it would be ‘major’; if less it would be ‘minor’; on any road length sections of ‘major’ and ‘minor’ works could alternate). Thus ‘major’ and ‘minor’ works could be mixed up together or even one category of work could be dependent upon the other being completed. Also there was an underlying premise at the outset that certain works were beyond (and possibly would remain beyond) the technical capacity of the community.

Packaging was then modified as set out in the ‘Tender Documents for Major Works - March 1999: COWI(T).Ltd’:

- **Private Contracts**
  
  Package 1: Outfall 3  
  Package 4: Water Kiosks with 5000 litre storage tanks  
  Package 5: Water Kiosks with 10000 litre storage tanks  
  Package 6: Water supply Node 1 - 2’  
  Package 15: Road works, storm water drainage and water supply Node 7 - 5 (Road No.4)

- **Community Works**

  All other works.

  This packaging was subsequently modified whereby it was proposed that Packages 4 and 5 be undertaken by both community and contractor (approximately half each) and the two private contract packages combined into a single package (ie the community would construct 2x10000 litre plus 3x5000 litre kiosks; the contractor would construct 3x10000 litre plus 2x5000 litre kiosks) but the recent budget cuts have resulted in further modification such that only Package 6 will be undertaken by contract (in this case DAWASA); all other works (to the limits permitted by the reduced budget) will be completed by the community.

### 7.2 Tender documents

The tender documents for private contractors consist of:

- **Tender Documents for Major Works: March 1999**
  
  **Volume I A:** Instructions to Tenderers  
  Conditions of Contract  
  Form of Tender  
  Bill of Quantities  
  Schedules Nos. 1 - 6

- **Volume II:** Technical Specification: July 1998

- **Volume III:** Tender Drawings: March 1999

These documents may be described as conventional civil engineering documents that have been amended to include more specific reference to conditions of employment and LB techniques. Examples of the more important additions or changes made for these reasons are set out in Annex 11: Indicative Changes to Conventional Form of Contract.

COWI prepared draft contract documents for the Phase II works. As noted above these documents were ‘conventional’ documents comprising a series of ‘Special Conditions of Contract’ – intended to address project-specific situations - supplemental to ‘General Conditions of Contract’ (which in this case were not actually included in the contract...
documents) together with instructions to tenderers, forms and so on. These ‘conventional’
documents were based upon the documents for normal civil engineering contracts of much
greater value than was the case under Phase II and which are often open to ICB. The
‘conventional’ format (in this case FIDIC) is a well-used series of documents familiar to all
parties to larger civil engineering works and, as such, available as an off-the-peg solution.

Applied to smaller works this documentation is amule if not positively cumbersome and
complicated, unnecessarily so in the opinion of this consultant. Although this approach is often
used in projects for the development of small contractors in various countries, considerable
effort is required to ensure that contract partners do understand the essentials of the contract
and are able to apply the various relevant conditions. Equally often, sections of the conditions
of contract are ignored (or at least not applied) as they are not responsive to the situation in
hand (in the same way that in Tanzania requirements for sureties and bonds are often
pragmatically ignored). The use of ‘conventional’ contract documentation is usually defended
on the grounds that this is the format that contractors will have to use as and when they develop
into a larger market and indeed it is acknowledged that there is some merit in this argument as,
currently, there is little usage of any simplified forms of contract, at least as regards public
works.

Views have been sought from various bodies in Tanzania concerning ‘conventional’ or
simplified contracts. Where the representative of the body actually expressed an opinion as to
the approach to take in the case of small contracts, the consensus was in favour of the
‘conventional’ approach for exactly the reasons stated above.

Thus, alternative conditions of contract were considered, either of which may have been used in
this project for private contracts:

Alternative A: Conventional documentation as prepared by COWI with recommended changes
and additions to the Special Conditions of Contract and Technical Specifications to
accommodate labour issues and the special concerns of this project. The advantage of this
approach was that the draft documents were already prepared and completion incorporating the
recommended modifications could be quickly carried out allowing the first contracts to go
ahead without delay. This was effectively a country-standard document.

Alternative B: Simplified conditions of contract in a format similar to some contracts already in
use in Tanzania and tested in other African countries for development of small contractors.
(This was based upon a form of contract which has been in use for some time in some regions
of Tanzania for routine road maintenance works (Ministry of Works) but with some
modifications indicated by the experiences of the Labour Based Contractor Development
Programme in Zimbabwe plus inclusion of specific clauses concerning labour policies and
practises as recommended by ILO for Employment Intensive Infrastructure Programmes).

It has been recognised that ‘conventional’ engineering and construction contracts can inhibit
smaller contractors in bidding for straightforward low-risk contracts. Thus some attempts have
been made to produce simplified contract forms often using simple language and including
references to cooperative working between Employer, Engineer and Contractor. Examples of
such contracts are ‘ICE Conditions of Contract for Minor Works 2nd Edition’ and ‘NEC Short
Contract (Engineering and Construction)’ and the FIDIC Short Form contract While these are
improvements on ‘conventional’ documents they require modification for application to LB
works to be executed by small developing contractors. The ‘NEC Short Contract’ is part of the
NEC (New Engineering Contracts) series which is intended to simplify contract documents and
make them more accessible to developing/inexperienced contractors and for simple works. It is
also intended to be a component of the recently promoted ‘non-confrontational approach’. The
choice really comes down to FIDIC Short Form or NEC Short Contract and this choice is more
down to attitude and acceptance in a particular country than any substantive difference between the offerings.

However, as noted above, in many countries there is no use made of these contracts and until such time as a satisfactory short-form contract is generally accepted and more widely used, various countries which are engaged in small contractor development programmes have developed different contracts. Most have been developed for LB gravel road construction and maintenance (eg Lesotho, Kenya, Zimbabwe, Zambia) and most are expurgated ‘conventional’ forms rather than a new approach. However, some rather more simplified contracts have been developed (Uganda, Tanzania), usually in connection with road works.

Thus the Indicative Shorter form contract set out in Annex 8 is a variant upon a form of contract which has been used for some 6 years in the Arusha/Moshi areas of Tanzania and is thus familiar to some contractors and GOT (although apparently without being officially approved by GOT).

As noted above, wherever possible, documents already produced by COWI for their ‘conventional’ documentation were to be used to complement whichever contract format was chosen. While not as elegant as the ‘NEC Short Contract’ or FIDIC Short Form either of the contract documents under consideration were quite adequate for the Hanna Nassif circumstances as they incorporated the bones of the more complicated ‘conventional’ contracts such that progression to such a format should be possible as contract parties gain familiarity with the use of the contract documents.

Although translation of the conditions of contract into Swahili may have been desirable, translation of the accompanying documents such as Technical Specification would have been a daunting task was not considered justifiable in this case.

A final observation is that it is common practice to tailor forms of contract, exactly as was actually done in Phase II. However, some care should be observed as the are legal documents with precise wording. Engineers are not lawyers and the resulting hybrid could result in a lack of legal rigour.

As drawings, technical specification and BOQ were be common to either approach, and here it worth noting again that a design that is appropriate for LB techniques or a technology neutral design may be advantageous, preparation would be relatively straightforward whichever approach was used.

7.3 Tendering procedures

Various methods of selection of contractors were considered:

- Open tender - contractors invited to tender by advertisement without qualification
- Selective tender – prequalified contractors invited to tender
- Negotiated tender – a single contractor is invited to quote a price (usually a particularly specialised input).

It was concluded that the structure of this project with considerable community involvement combined with the sensitive representational situation within Hanna Nassif indicated that great care should be taken in ensuring transparency in contractor selection. It was recommended that the NCC ‘Code of Procedure for Civil and Building Works in Tanzania’ should be followed and that selective tenders should be sought. (To quote the NCC code ‘Selective tendering based on prequalification is recommended as being the best procedure affording maximum efficiency
and economic advantage. Open tendering is undesirable and should be discouraged as it involves so many contractors in abortive tendering that wastes resources and adds to inefficiency in the execution of the construction project’). This would have required advertisements to be placed in the press requesting application for prequalification. (Annex 7: Prequalification and Selection of Contractors contains a notice and prequalification forms which satisfy the NCC code). The information returned by aspirant contractors would be evaluated and a short-list of firms selected and invited to tender for works packages.

In practice the selected contractors were the seven who were invited by UCLAS to attend a meeting in October 1998 to discuss contractor development in connection with Hanna Nassif. So far as is known there was no other initiative to identify other contractors who may have been interested in these works nor to formally prequalify contractors. While agreeing that selective tendering is the most efficient use of resources on all sides and noting that in ‘Code of Practice for Civil and Building Works in Tanzania: NCC para 6 ‘...it is ..... generally accepted good practice that the number of contractors invited to tender should not be less than four nor more than eight’ this is based upon a formal procedure for prequalification involving advertisement, examination of particulars and shortlisting of contractors. The identification of the seven contractors in this case did not follow recommended practice. However, the pressure to expedite works and the requirement that the invited contractors were requested to submit company profiles with their tenders (thus allowing capacity to be taken into account during evaluation) is acknowledged.

Activities and responsibilities in the tender process are shown in Table 7.3.1

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notify contractors of pre-qualification</td>
<td>UCLAS</td>
</tr>
<tr>
<td>Tender submission</td>
<td>UCLAS</td>
</tr>
<tr>
<td>Site Inspection/Workshop</td>
<td>UCLAS/COWI (T) Ltd</td>
</tr>
<tr>
<td>Return of tender documents (to UCLAS)</td>
<td>Contractors</td>
</tr>
<tr>
<td>Tender opening</td>
<td>UCLAS/COWI (T) Ltd</td>
</tr>
<tr>
<td>Tender evaluation</td>
<td>COWI (T) Ltd</td>
</tr>
<tr>
<td>Formal recommendations (to UCLAS)</td>
<td>COWI (T) Ltd</td>
</tr>
<tr>
<td>Negotiations</td>
<td>UCLAS/COWI (T) Ltd</td>
</tr>
<tr>
<td>Review by NIGP</td>
<td>NIGP</td>
</tr>
<tr>
<td>Award</td>
<td>UCLAS/NIGP</td>
</tr>
<tr>
<td>Contractor on site</td>
<td>Contractor</td>
</tr>
</tbody>
</table>

Table 7.3.1

2 contractors were selected by this process and they began their works in September 1999. Another 2 work packages were intended to be constructed by private contractor. Class VI and VII contractors in Dar es Salaam were invited to apply for pre-qualification by newspaper advertisement in July 1999. 22 contractors responded to UCLAS by the deadline (15.07.99) of which 5 were rejected because they were Class V and above. The documentation submitted by the remaining 17 was scrutinised and the 10 highest ranked contractors were advised by letter (15.09.99) that they had been selected for attendance at a one-week training course. By letter dated 5.10.99 the 10 contractors were advised that the proposed course was for foremen (or site supervisors) and that attendance at this course would be a pre-requisite for pre-qualification. Tenders were subsequently received but no contracts were awarded due to the cuts in budget.
This process was carried out by UCLAS although it is understood that NIGP were consulted with regard to the shortlisting of contractors

7.4 Shadow tendering of community contracts

Community executed works have, until recently, been undertaken under a contract basis which does not allow for a profit (or loss) to be made. Materials are separately purchased, labour requirements are estimated and costed with a 10% retention (10% of materials costs only from community contract 3 onwards) by CDA for subsequent maintenance funding, although there is a backlog of payment of this retention (or 'profit') due to the CDA. Shadow contracts were intended to lead the community from what was effectively a direct labour/force account system to commercial awareness of contract execution. Initially a paper exercise in which shadow contract and actual performance can be compared, the principle can be extended to gradually phase in a normal contract procedure.

Shadow contracts were piloted on community Contracts 11 (Road No 3 - drainage) and 12 (Drain No 1) but only for the labour component; purchase of materials continued to be carried out by CDA under the guidance of TST (ie funds were disbursed by TST to the CDA account after estimation of requirements by the site engineer; a weekly meeting between CDA and TST then decided on requirements for immediate purchase of materials which CDA would procure). A small profit was made on contract 11 (TSh 17000 on a contract value of TSh 4000000) while contract 12 broke even. It was planned to continue with shadow contract trials for outstanding community works. Although shadow water pipeline contracts will continue to include only the labour component (as TST procurement procedures for acquisition of water pipes and fittings for all community works is complete) shadow community contracts for kiosks will include all contract elements. Profitability of later shadow contracts have not been examined by this consultant.

7.5 Lessons learned

Packaging of works

- There should not be prejudgement of community capacity at the outset.
- Packaging of works should be a flexible process as the project progresses and community capability hopefully increases.
- Packaging should have regard to the logical sequence of activities (eg do not construct the drain before constructing the outfall). Concurrent construction of different works in the same location may be desirable (eg install the water supply pipes during the course of the roadside drain works; the road works then follow).

Tender documents

- Tender documents produced by COWI(T)Ltd for private contracts were essentially modified conventional conditions of contract with further modifications to better cover conditions of employment, task rates and LB methodologies. Although these are well proven formats they are very sophisticated for small contracts.
- Consideration should be given to shorter, simpler contract formats (some of which have been used elsewhere in Tanzania - an example is included in Annex 8: Conditions of Contract (Indicative shorter format)) and, in fact, the community contract format was a very simple 2 page document based upon an example of a Simple Community Contract set out in Annex 1B, Community Contracts in Urban Infrastructure: Practical Lessons from Experience.
• Specifications common to all contracts with minor variations to cover LB methods were more than adequate for all Phase II works.

_Tendering procedures_

• The prequalification procedures for selection of first round of private contracts did not follow normal recommended procedures.

• Responsibilities for the various activities in the tender process were divided amongst UCLAS and COWI(T)Ltd and this resulted in an discontinuous process.

• The evaluation of tenders by COWI(T)Ltd with recommendations to UCLAS is a conventional practice whereby the client, in this case NIGP, receives advice from an independent technical evaluation.

_Shadow tendering of community contracts_

• Shadow tendering for community contracts never really progressed beyond estimation of labour and materials costs and comparing actual with estimated costs.

• The actual arrangements for community contracts - estimation of costs, requisition of funds, purchase of materials, execution of works, payment of labour, (request for more funds in case of cost over-run) is more reminiscent of a force account operation than a putative commercial contract.

• More attention should be given to shadow tendering at an earlier stage in a project and phased adoption of commercial practices including profit/loss rather than a simple payment of 10% ‘profit’ on materials costs whether or not actual costs are more or less than estimated costs (i.e. regardless of whether or not a profit was actually made).

• The basis of a percentage ‘profit’ calculated upon materials costs only rather than total contract value should be considered.

• As expected, CDA commercial awareness increased as a result of the trials (and observation of the contractors’ work in Hanna Nassif) and the following points are noted in the context of community emulation of contractors’ methods:
  i) the distribution of any profit should be clearly agreed at the outset (e.g. x% for infrastructure maintenance; y% as bonus to workers; z% to assist CDA register with CRB and so on); in the same way any losses should be accommodated;
  ii) quality can be jeopardised if works are rushed;
  iii) there may be reluctance to do additional works without payment as they previously did (e.g. crossings over roadside ditches);
  iv) workers’ task rates may be increased.

• Purchasing of materials was a delicate issue. Perhaps identification of supplier and payment of said supplier should be separate functions involving different persons, but both stages subject to CDA approval.

8. **CONTRACTS**

This section discusses the contractual and cost results of community and private contracts awarded to date and goes on to suggest how future procedures might be modified in the light of experience gained to date. Physical construction is covered below in 9.6: Works in accordance with design. Annex 10 contains an Overview of Estimated and Actual Construction Costs.

8.1 **Works in accordance with community contract specifications**

Additional costs have been incurred on community contracts in connection with footbridges over roadside drainage ditches and in connection with reinstatement of unauthorised water
supply pipes which cross excavations. It is understood that the estimated cost of such unbudgeted items is in excess of TSh 7000000 despite some community contributions having been made to some of the 200 or so footbridges which have been constructed to date. These footbridges were shown in the original design drawings (Drg N°7005) but the quantities of reinforcement and concrete were omitted from the BOQ for both community and private contract works

8.2 Works in accordance with private contract specifications

There were costs over-runs on private contracts. The background to this situation is instructive.

Evaluation of Tenders

The independent evaluation of tenders by COWI (T) Ltd led to the award of contracts to Sala Construction and General Management (Package No 1 - Outfall No 3) and Lukwati Building Construction Co (Package No 15 - Road No 4 [drainage, roadworks, water supply]). The contracts were signed by NIGP. The following comments are made on the evaluation procedure:

- 7 contractors were shortlisted and invited to tender; 6 collected tender documents of which 4 submitted tenders by the deadline.
- The 4 tenderers were assessed on technical capability for each package. Any contractor rating less than 5/10 points would be rejected. All 4 achieved 5 points or more.
- Tenders which fluctuated more than 15% from the Engineer’s Estimate (made in February 1998) of basic unit rates and tender amount were to be rejected. In fact, while the tender amount for Package 15 was 12.65% less than the Engineer’s Estimate only 14 out of 69 of the lowest bid basic unit rates were within 15% of the engineer’s estimate (note that not all the individual lowest unit rates were those of Lukwati Building Construction Co which was awarded the contract). The tender amount for Package 1 was 146% more than the Engineer’s Estimate while not one of the 16 of the lowest basic unit rates was within 15% of the Engineer’s Estimate.
- No tenderers were initially responsive regarding bid security and performance bond. Following telephone calls bid security was provided by unresponsive contractors. Performance security requirements (bank letters) were waived at evaluation.
- 1 tenderer for Package 15 was rejected as the tender prices were incomplete.
- No contractors provided information required under Schedules 1, 2, 4, 5 & 6. This was waived at evaluation.
- All tenderers had arithmetical errors for one or other of the packages.
- The evaluation report omitted a recommendation for award of Package no 1. This was later provided by e-mail.

Contract negotiations

A meeting held on 13.08.99 was attended by UCLAS/TST, COWI (T) Ltd, Serviceplan, Lukwati Building Construction Co and Sala Construction & General Maintenance. Minutes of the meeting form a part of the contract for each contract. Summarising and commenting on certain minuted points:

1. Negotiation on BOQ
1.2 Tender sum for Package 1 is TSh 15981500.
1.3 Tender for Package 1 does not include costs for excavation of the waste and its transportation to disposal site were not included in the BOQ.
BOQ 3.3: Excavation for Outfall has provision for excavation of 392 cum. The specification states that this includes excavation of unsuitable material and payment will include ‘… disposal of surplus excavated material’. It is not clear from this description whether this rate should therefore include for transport of material to tip. However as there is provision elsewhere in the BOQ (3.9 Cut to Spoil for Drainage Structure and for roadworks, 2.6 Cut to Spoil) payment for both of which includes ‘…haulage not exceeding 2000m ….’ it may be implied that BOQ 3.3 only includes for dumping adjacent to the work site. It was thus agreed that the contractor would be paid for this haulage at dayworks rates (an increase in the contract sum).

1.4 Package 1 - Stones for gabion boxes and mattresses were not quoted in the BOQ. Agreed that Sala Construction & General Maintenance must indicate the rates for the above items not included in the BOQ under Schedule 1 (Day Works) and the Engineer will verify these costs during construction.

Daywork rates were completed for both contracts. The contractor contended that in quoting rates for BOQ 3.39 Placing of Wire Mesh Gabions and 3.40 Placing of Wire Mesh Gabion Mattresses he did not realise that rock fill was required and thus did not allow for this cost. Although not explicitly stated it was in fact agreed that this item would be paid at the daywork rate (an increase in the contract sum). The specification clearly states that gabions are to be filled with rock and that payment will include fill stones (ie the unit rate should include for this rock fill). The quoted rates are respectively 5x and 3x the Engineer’s Estimate rates.

1.5 Tender sum for Package 15 amended from TSh 54075787 to TSh 54701087. Correction of arithmetic error.

1.6 Contractors labour payment rates should take into account current community rates. It was agreed that payments of community and contract workers would be the same.

2. Discussion/Elaboration/Agreement on various clauses that will form part of the final contract.

2.2 Contractors must submit performance guarantees from either bank or NCC.

Both contractors subsequently presented acceptable guarantees.

2.3 Contractors will insure works and workers.

This has not been checked by this consultant.

2.4 Contractors will maintain a daily site register of workers.

Normal site management practice.

2.5 CDA/TST will work with the contractors to assist mobilisation of workers particularly women.

All unskilled and most other personnel are from Hanna Nassif and were identified by CDA.

3. Payment of Mobilisation Fee

3.1 Advance payment will be 15% of contract sum.

3.2 Advance payment will be paid upon submission of bond/guarantee.

Lukwati Building Construction Co submitted an acceptable bond/guarantee and received advance payment as stated. Sala Construction & General Maintenance did not receive advance payment.

4. Date of Signing Contract

4.1 20.08.99 at NIGP subject to submission of documents as noted above.

Signature of the contracts was made by NIGP and contractors. The CDA had previously signed the summary of BOQ on 13.05.99 including agreed contract period.

Other issues

Package 1 - Sala Construction & General Maintenance
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000

- Although shown in the design no quantities were included in the BOQ for a concrete drainage channel from the bottom of the gabions to the creek. A length of over 60m of lined ditch was omitted and a VO was issued to include this item of work in the contract. This increased the contract value by TSh 5577342.

Package 15 - Lukwati Building Construction Co

- Quantities for footbridges over drainage channels were not included in the BOQ.
- Likewise there was no provision for dealing with unauthorised connections and water supply pipes in the BOQ. The contractor indicated that he would claim for additional costs incurred in reinstatement of unofficial water supply pipes crossing excavations of drainage channel and water pipe trench although the specification (p46) indicates that payment shall be unit rate per m of pipe length and shall include ‘…. Restoration of disrupted services’. In other words the contractor did not have a valid claim.
- Although BOQ 3.5 Backfilling for Roadside Drain is included there is no corresponding BOQ item for excavation of the roadside drain. As all other drainage items have excavation and backfill items included (BOQ 3.2 Main Drain, 3.3 Oufall, 3.4 Culverts) it can only be assumed that this is an omission. The contractor spotted this anomaly but did not make a claim.
- It was suggested by the contractor that there is an error in the taking off detail for reinforcement steel for culverts and Lukwati Building Construction Co suggested that a claim may be made. However, a cursory inspection suggested that any underestimate would not exceed 10% of the BOQ quantity and no claim was presented by the contractor.

General

- Both Packages 1 and 15 involve excavation of unsuitable material and both contractors have been instructed to carry out additional excavation in order to reach a stable foundation level for drainage channel and gabions although there is BOQ provision for cut to spoil under item 2.22 in Package 15. Future BOQ should perhaps have a provisional sum for this type of E/O quantity.
- Package 15 involves excavation of trench for water pipes. In some locations this is through dumped solid waste tip areas and again additional excavation is likely to be necessary to reach a suitable foundation material. Interestingly the specification noted (p45) ‘Excavation shall be to widths and depths indicated on the drawings or to such lesser or greater depth as the Engineer may instruct ..... in order to obtain satisfactory foundation, bedding etc’ and goes on to say ‘Should any excavation be taken below the required levels or depths necessary to obtain a suitable bottom the contractor .... Will be required to fill the excavation to the proper level with concrete or material of same specification for the foundation at his own expense’. Although not explicit this suggests that the contractor will be entitled to payment for E/O excavation instructed by the Engineer but not for any over-excavation carried out for whatever other reason.
- Normally any pricing error by an experienced contractor at tender stage would not be subject to any additional payment by the client. The argument that the contractor had made a mistake or underestimated the component costs of a BOQ unit rate might rate sympathy on the part of the client but little more. The contractor’s potential profits would be reduced or he may even make a loss. However, in the case of inexperienced contractors it is indeed possible that mistakes had been made and that costs were genuinely underestimated. A project that involves contractor development should not permit a contractor to make a clear loss due to these reasons and on the other hand care must be taken to ensure that an ingenuous request for additional payment on these grounds does not permit a contractor to make additional profit. The decision that the contractor can receive additional payment on these grounds (eg stone for gabions) was taken for this reason.
Table 8.2.1

<table>
<thead>
<tr>
<th>CONTRACTORS</th>
<th>SALA CONST. &amp; GEN. MAINTENANCE PACKAGE 1</th>
<th>LUKWATI BUILDING CONSTRUCTION CO PACKAGE 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>TENDER SUM</td>
<td>15981500</td>
<td>54721087</td>
</tr>
<tr>
<td>ENGINEER’S ESTIMATE - COWI (T) Ltd</td>
<td>6535075</td>
<td>53005475</td>
</tr>
<tr>
<td>COMMITTED EXTRA COSTS</td>
<td>10309864</td>
<td>(2850782)</td>
</tr>
<tr>
<td>ESTIMATED FINAL CONTRACT SUM</td>
<td>26291364</td>
<td>51870305</td>
</tr>
</tbody>
</table>

NOTE:
1. Actual quantities are measured and valued at the contract rates. This may give an increase or decrease in the contract sum.
2. Instructions for additional works or additional quantities of work are covered by VO or SI. The committed extra costs thus include these additional works and any costs resulting from measurement of actual quantities of work originally included in the BOQ.

8.3 Facilitation of improved work - contract documentation, supervision, training

A draft contract has been negotiated between UCLAS and DAWASA for the laying the water supply pipe along Kawawa Road and it is understood that contract signature should take place shortly. DAWASA has agreed to a reduced sum for the works in recognition of CDA’s civic functions (a reduction from TSh47000000 to TSh30000000). This contract is not subject to the same conditions as the 2 previous private contracts and will not be subject to the same site management or supervision regimes.

8.4 Perceptions of project partners on community and private contracts

8.4.1 Private Contractors

The 2 contractors currently on site (Sala Construction & General Maintenance and Lukwati Building Construction Co) are predictably positive in their views on the use of private contractors in a community based project of this type but have the following observations:

- Initial scepticism concerning the level of technical ability of Hanna Nassif personnel was overcome (contractors were obliged to use community personnel wherever possible).
- Similarly, unease at the level of community involvement in supervision and quality control of the contract works was resolved as there was no hindrance to progress from this source although the high visibility of their works did not allow the contractor (to quote one contractor) ‘to hide very much’.

8.4.2 CDA

The CDA has strong views on the use of contractors:

- There was no rotation of workers despite agreement that the contractor would do so for unskilled labour although when this was taken up with the contractors both asserted that
unskilled workers were rotated on a weekly or fortnightly basis; skilled workers/artisans were not rotated).

- The contractors did not teach the community anything, rather the exact opposite.
- Hanna Nassif artisans are better experienced than the contractors’ site engineers/supervisors.
- The only outstanding works which would be outside the capacity of the community are the connection to the water main in Kawawa Road (in fact this will be carried out by DAWASA directly).

On a more positive note, other CDA observations include:

- The community now has an increased confidence in their own abilities (by comparison with the contractors who are dependent upon community personnel).
- The contractors have overcome initial scepticism of the abilities of Hanna Nassif personnel and have stated that they would use some of these persons again on other contracts outside Hanna Nassif.
- The community has a sharper commercial awareness as a result of observing the contractors (this was manifested in a sharp reduction in the size of the workforce on community contracts).

CDA now wishes to go ahead with registration with CRB as it is considered that there is a market for their acquired skills with other CBOs and NGOs engaged in similar works. Although pressure of work continues to prevent TST from assisting CDA in this endeavour, and there are other problems arising from the legitimacy of CDA in its present form, it is suggested that this registration application should go ahead although this would probably have to wait until after the CDA elections in late 2000 (ie after the general election) and it is understood that CRB has no objections in principle to registration under the specialist LB category.

8.4.3 DCC

In the opinion of the WEO Phase II works should have been undertaken entirely by the community with specialist contractors only being engaged as necessary (eg connection to the water main on Kawawa Road). This opinion was not based on any antipathy towards the contractors currently working on site but rather a matter of maximisation of proven community abilities. In the same way it was expected that routine and periodic maintenance should be executed and funded by community effort (ie the community should not engage maintenance contractors). DCC has now been dissolved and authority has passed to KMC.

8.4.4 KMC

KMC has expressed support for community based action and community contracts and have stated that KMC may be able to assist with the completion of tasks curtailed by the budget cuts. The details of this potential support should be discussed shortly.

8.4.5 NIGP

NIGP view the Hanna Nassif project as a progressive capacity building exercise. Phase I consisted of community executed works only which were of lower quality but enabled a degree of empowerment and acquisition of skills by the community. Phase II continued and extended that capacity building and improves quality while bringing in small contractors who not only develop their own capability but also, in their use of community labour and artisans, expose the community to better project management and works organisation skills as well as increased
commercial awareness. After Phase II, whether through a third phase or similar works elsewhere, NIGP envisages only community executed works (ie not private contracts) undertaken under a fully commercial contractual regime and this resolve has been strengthened upon review of the relative costs of community and private contracts (see para 8.5 below). The registration of CDA with CRB would be welcomed.

8.5 Outputs (actual and estimated)

Timing of construction activities has been discussed in 6.Workplan and Quality of Work and quality of construction is covered in 9.6 Works in Accordance with Design below.

Annex 13 Compares the costs between engineers estimate, the actual costs and the project budget for the infrastructure works. The table shows that although the cost on the community contracts was almost similar to the engineers estimates, the actual costs on the private contracts was considerably higher compared to engineers estimate (37%). Looking at the original project budget for infrastructure works, the actual costs are 7% less as envisaged during project formulation.

Quantities and estimated costs varied significantly. Community contracts were generally underestimated, the most significant underestimates (see tender prices in annex 13) being occasioned by contracts with major materials costs. To some extent this is understandable given the lack of involvement of the community and site management personnel in major materials procurement, which was undertaken by UCLAS. Similarly, the engineer’s estimates made by COWI(T)Ltd for the private contracts underestimated materials costs which made up a large component of the Sala contract (gabions) while the Lukwati contract estimate was accurate. Overall the original estimates for the project as a whole were accurate.

Unit costs have been calculated for all community contracts (see Annex 10 and Annex 12: Overview of Estimated and Actual Construction Costs) and these are summarised in Table 8.5 below.

<table>
<thead>
<tr>
<th>Work Item</th>
<th>Unit costs - Range/TSh</th>
<th>Unit costs - Average/TSh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main drain/m</td>
<td>38682 - 64109</td>
<td>47683</td>
</tr>
<tr>
<td>Side drain/m</td>
<td>15117 - 32987</td>
<td>24245</td>
</tr>
<tr>
<td>Culvert/no</td>
<td>61165 - 1960435</td>
<td>1222131</td>
</tr>
<tr>
<td>Footbridge/no</td>
<td>74377 - 133165</td>
<td>92263</td>
</tr>
<tr>
<td>Water pipes/m</td>
<td>4738 - 6887</td>
<td>5812</td>
</tr>
<tr>
<td>Gabions/m</td>
<td>212876</td>
<td>212876</td>
</tr>
<tr>
<td>Water kiosks/no</td>
<td>2389955 - 2747195</td>
<td>2518575</td>
</tr>
<tr>
<td>Valve chambers/no</td>
<td>721934</td>
<td>721934</td>
</tr>
</tbody>
</table>

Table 8.5

Comparison of private and community contracts has been made (although this should be reviewed after payment of final contract sums and final measurement of all community contracts). Overall, Sala is 46% more expensive than the highest calculated community rates (59% above average community rates) while Lukwati is 35% more expensive than the highest calculated community rates (64% more than average community rates).

8.6 Profitability (economic and social perspectives)

The vast majority of houses in Hanna Nassif are owner occupied and it is reported that property and land values have increased as a result of the drainage works in Phase I and Phase II. There
is also a manifest growth in traffic entering Hanna Nassif (although no traffic counts have been carried out) as a result of the improved road conditions (even though some road works have not been completed) and generally improved accessibility, and also because there is increased trading taking place. In fact some very heavy vehicles which are patently unsuitable for the available road widths are now common. Other benefits include public health and improved amenity (eg a health centre is now to be established in the recently disused school adjacent to the CDA office)

8.7 Lessons learned

Works in accordance with contract specifications

- Care should be taken that not only the design is complete but also that no work items are omitted from the BOQ and estimate of quantities (also for private contracts below in which some 60m of concrete drainage channel from the bottom of the gabion cascade to the creek, was omitted).

Works in accordance with private contract specifications

- Anomalies detected at evaluation stage should have been investigated more fully, especially as regards the major differences between the engineer’s estimates and tender figures.
- The contractors did not fully understand the requirements of the tender documents as to what should be included in BOQ tender rates.
- There was no allowance for costs of dealing with unauthorised water connections (also for community contract above).
- There was no provision for spoil to tip for excavated unsuitable materials.

Perceptions of project partners on community and private contracts

- Knowledgeable community scrutiny of private contractors resulted in a higher level of practical supervision of quality than would otherwise have been the case with the normal site supervision regime.
- Closer attention should have been paid to ensuring that contractors fulfilled their agreements regarding rotation of workers and employment conditions generally.
- Similar standards of work can be achieved by ‘small contractors’ and ‘experienced community’ execution, in similar time periods.
- Most project partners believe that any similar future projects should be executed entirely by community management and execution.

Outputs

- Private contracts are predictably more expensive than community contracts of the order of 30% - 60%. Quality and timeliness are comparable.
- Employment generation is less with private contracts than with community contracts due to smaller work forces and increased task rates/piece work.
- Underestimates of material costs were consistently made throughout (emphasising the need for involvement of all parties in all aspects of procurement and contract preparation).
- Further analysis of costs is desirable after final payments for private contracts and completion of community executed works.

9. USE OF LABOUR BASED METHODS & SITE ORGANISATION
9.1 The use of labour-based methods

Throughout, the works have been carried out by labour with hand tools and hardly any equipment has been used. Private suppliers transported the construction material to the Hanna Nassif settlement and within the settlement haulage took place using head pans, wheel barrows and push cards. A concrete mixer has been used for part of the time as it unfortunately broke down and was not repaired.

Even though the works were carried out with labour-based methods less than 20% of the total construction costs were used for payment of labour. The high % on material costs was due to the fact that all drainage canals were lined, hardly any road works were carried out (normally road works can amount to 50% labour input) and part of the works is related to provision of drinking water supply (high costs on water pipes etc.).

Table 9.1: Tender price and costs on material and labour for 21 community contracts Hanna Nassif phase II.

<table>
<thead>
<tr>
<th>Comm.contracts</th>
<th>Material</th>
<th>70 133 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tender Price (Tsh)</td>
<td>Labour</td>
<td>22 011 104</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>92 144 204</td>
</tr>
<tr>
<td></td>
<td>% labour cf. total</td>
<td>24 %</td>
</tr>
</tbody>
</table>

| Actual costs (Tsh)    | Material     | 97 802 766 |
|                       | Labour       | 21 761 700 |
|                       | Total        | 119 564 466 |
|                       | % labour cf. total | 18 %      |

Table 9.1 shows that the compared to the tender prices labour was overestimated and material underestimated.

9.2 Work planning and reporting

Weekly site reports were made by the site engineer on construction progress. TST meetings were held every 2 weeks at Hanna Nassif for which minutes and action plans were produced. Site progress meetings attended by COWI(T)Ltd and TST were minuted and the these minutes are circulated to participants. Quarterly reports are produced by UCLAS which are circulated to project partners and reports 2 - 12 covering the period June 1997 to March 2000 were available for inspection during the course of this assignment.

Reports on site visits are reportedly produced by COWI(T)Ltd although such reports are not shared with TST/UCLAS and none have been examined by this consultant.

Visits to site by COWI(T)Ltd and Serviceplan have been noted in a site book by the visitor and a total of 25 such visits are recorded between 2.03.99 and 14.04.2000. Most entries give brief details of the purpose of the visit. The practice of recording the duration of the visit appears to have fallen into disuse during this period but the average recorded duration of site visits is 75 minutes. At one stage verbal instructions were issued on the site and most instructions were not recorded. It was agreed by TST and COWI(T)Ltd in October 1999 that SIs could be given verbally but in all cases such instructions were to be recorded in a site instruction book which would be inspected by COWI(T)Ltd on each site visit, sign to confirm this inspection and write any comments. The book which records site visits has a section for VOs and SIs but no entries
have been made under this section and it can only be assumed that the agreed procedure was never implemented.

TST is responsible for production of ‘as built’ drawings but it is understood that these are not complete and none were inspected during this assignment. Previously inspected drawings comprised long sections and sketch plans of some locations only. No current preparation of such records is taking place.

Planning of the works has suffered throughout by the large numbers of unauthorised water connections and supply pipes encountered during excavation. Predictable but unquantifiable, allowance was made in later community contract estimates for these impediments in terms of time period and materials as in most cases these connections were repaired and restored if disturbed by the community (and private contract) operations.

9.3 Site organisation

Community contracts were planned, organised and directed by the site management team acting as site or contract engineers. Resource requirements were estimated and agreed with the CDA construction committee (time period, size of work force, materials), funds were requisitioned from UCLAS based upon these estimates and payment was made from the CDA account against petty cash vouchers with supporting invoices and attendance sheets. Major procurement of materials (eg water supply pipes, gabions) was undertaken by UCLAS, CDA procuring minor items such as cement, steel, aggregates and so on.

For private contracts the TST engineer should have acted in a contract supervisory (resident engineer) role with other site management functions being the responsibility of the contractor but, in practice, the relative inexperience of the contractor often dictated a more pro-active and direct role for the engineer in management of the private contractor’s works.

From available records it appears that the maximum workforce in action at any one time during the course of Phase II (just over 100 workers, 23% women) occurred in October and November 1999 when consecutive community contracts 15 and 16 were concurrent with both private contracts. Both contractors used significantly smaller work forces than had previously been used by the community for similar works although it is noticeable that that community work forces also reduced in numbers subsequently, the greater proportion of that reduction being in the number of women workers which fell from (indicatively) 40% to below 15%. An overview of all recorded work force and employment generation statistics (estimated and actual) is included in Annex 9: Overview of Estimated and Actual Workforce and Working Days.

Protective clothing was available on the site (eg waterproof boots, gloves) although usually only issued for specific tasks (eg excavation in water) but some workers opted not to use them complaining they were uncomfortable. Limited first aid equipment was also available.

9.4 Division of work

The TST site engineers control works and report to the Project Manager. Although it was intended that these engineers would coordinate and to some degree overlap their duties (to permit coverage in the absence of one or the other), there was effectively a division of responsibility with site organisation and supervision being carried out by Eng. Kasure and Eng Madee has also been involved in site management in the later stages of Phase II.

The COWI(T)Ltd role in supervision is discussed elsewhere.
9.5 Task rates and payment of workers

Task rates for community works are more or less as set out in Table 9.4.1 and these rates are used in the estimation of labour costs for community contracts. The workers engaged on these contracts may cease work for the day when the task has been completed.

It was agreed that the private contractors would use the same task rates and wage levels as used for community contracts. However, the workers on these contracts were expected to continue working for full day, even if they had completed the set task and they would receive pro rata payment for the number of tasks completed, effectively piecework. Some complaints were made by workers engaged by private contractors that higher task rates had been set. This was denied by both contractors although it was noted that certain specialised tasks, not covered in the table, were onerous (e.g., excavation of 3 cum/day of solid waste, especially for gabion placing - deep excavations and sodden material; gabion filling tasked at 6.6 cum/day - 2 baskets plus 2 mattresses per day (ie 2x1.5 cum plus 2x1.8 cum per day).

Rates of pay are currently reported to be:

- Foreman/skilled workers: TSh 1600/day ($2)
- Semi-skilled: TSh 1400/day ($1.75)
- Unskilled: TSh 1200/day ($1.50)

9.6 Use of tools and equipment

Tools on site include picks, hoes, headpans, wheelbarrows, bars, hand rammers, shovels, equipment for bar bending and steel fixing, surveyors level, tapes, setting out equipment, concrete shutters and timber. Some items are in need of repair and in general this equipment is not tidily stored. There is also a concrete mixer and poker vibrator both of which are reported to be in working order. Most of this equipment has been purchased by CDA during the course of Phase I and Phase II although it has not been possible to identify exactly which community contracts were charged with what purchase. (This could create a false appreciation of contract costs as tools purchased under contract A would continue to be used in subsequent contracts such that the purchase costs should be allocated between the various contracts).

9.7 Works in accordance with design

Physical construction of works for community and private contractors is considered here. Contractual issues and costs are covered in 8.Contracts.

During this assignment no works were in progress. However, all works constructed during the course of Phase I and Phase II were inspected and an assessment made of quality, current condition and functionality. More specific observations on procedures and quality are noted below:

- Although the sequence of construction operations was complete and correct (excavation of ditch profile, blinding concrete to base, steel fixing, placing of concrete to base, placement of steel shutters, placement of concrete in side walls, striking of shuttering, plastering and finishing as necessary) the quality of lined roadside ditches this work is, on the whole, only moderate with honeycombing of walls (which have requiring plastering, in some sections, extensive plastering, to fill voids) due to poor compaction and vibration of the concrete by large diameter steel rods for tamping and rubber headed mallets for vibration of formwork. The finished product is, on the whole, acceptable but could and should have been better.
• The concrete mix used was noticeably coarse and was a contributory factor to the honeycombing mentioned above. The mix was intended to have a 20mm nominal size of aggregate but in practice tended to be oversized. Also the type of aggregate used tended to
be dirty and brittle, easily crushing. As long as this type of limestone is used then close attention has to be paid to vibration in order to achieve a quality product.

- The placing of blinding, steel reinforcement and concrete base in an open ditch gives rise to soil and debris falling into the excavation. Cleaning of concrete surfaces before placing shutters for wall concrete was not carried out thoroughly.

- Width and level of the ditch walls vary and there was a tendency, particularly for the private contractor, to reduce the height of these walls giving typically a 150mm face of loose material above the top of the walls. This is obviously undesirable whatever the final level of the road surface may be as soils will wash into the drain. Varying wall thickness is due to a combination of loose shuttering, attempts to reduce concrete quantities and the very uneven surface of the excavation sides, especially in areas of tipped solid waste. The line of the drains, and in some sections the width, are variable and while a tidier product could have been produced, this is not seen as other than an aesthetic shortcoming.

- The quality of ditches produced by the community has improved during the course of Phase II and are comparable with contemporaneous private contract works.

- Backfill to the roadside concrete drain was usually little as it was cast against the sides of the excavation (it may have been better to shutter both sides of the walls) but even so little attempt was made to compact this backfill (or backfill to water supply trenches).

- Some bulging of the gabions constructed by both the community and private contractor is noted. Greater care should have been taken in laying these stones - they should not be simply thrown into the basket but should be laid with long axis parallel to the base of the gabion - although the random shape of this type of limestone makes this operation more difficult. No geotextile was used to line gabions at any of the outfalls constructed in Phase I or Phase II. (As an aside it is noted that the quality of the gabions constructed in Phase I outfalls is better than in Phase II).

9.8 Purchase and use of materials

For community contracts an estimate of labour and materials costs is made by the site engineer and this estimate is used as the basis for transfer of funds from UCLAS to CDA and purchase of tools and materials (usually from short listed suppliers) as necessary. Major procurement of materials has been undertaken by UCLAS throughout Phase II. Although documents have not been examined it is understood that prices were obtained from selected suppliers (some were selected on the basis of specialised advice eg Serviceplan for water supply pipes and fittings). Such materials were not usually delivered to the site until required, being held by the supplier and drawn down as required.

9.9 Earthworks

Material excavated from roadside ditches should have been shovelled towards the centre line of the road from where it would be spread to produce a base for subsequently imported murram. This procedure is set out in Drg. Nos.6003, 6004 although it appears that Stage 1: Excavation to Level (before shovelling of excavated material from the ditch) was not always carried out. It is clear that this process should only take place when suitable material is encountered. In practise, all excavated material is dumped and spread on the road including obviously organic soils and solid waste.

Given the relatively small amount of surplus good material encountered in excavation (mainly of roadside ditches) a balance of cut and fill in earthworks was not achieved. There was a preponderance of unsuitable material to be carted to tip whether directly from excavation or by stripping such dumped material from the road prior to spreading gravel.
These comments refer also to the water supply pipeline works within the roadway although there was little surplus material after backfilling the trench which should have been carefully compacted. No compaction of backfilling was observed on either contractor or community executed works.

The other major source of excavated material (outfalls) yielded almost entirely unsuitable material which required disposal although site practice was to spread this material immediately adjacent to the excavation as noted above.

9.10 Selection of workers

Many more persons applied for employment on community construction works than there were unskilled posts available and this situation worsened after the completion of the private contracts as the size of the community contract workforces reduced significantly thereafter. Applicants’ names were recorded, collected into groups and each week these groups were rotated such that an applicant could expect to work one week out of 2, 3 or 4 depending upon the number of applicants and contract needs. Proxy registration (a number of family members would register in their own names in different groups and then, one [eg the eldest son] would work in their place such that he would have more continuous employment) was stopped by CDA. Balloting of workers did not take place although the adopted system appears fair.

Workers for the private contracts were selected differently. It was agreed that wherever possible workers would be recruited from Hanna Nassif and all applicants presented themselves on the first day. They were then selected by the CDA based upon the contractors stated requirements. Any subsequent recruitment was undertaken by the private contractor’s foreman without reference to CDA. Although it was agreed that there would be rotation of workers as for community contracts, this did not take place, at least, not at weekly intervals. Both contractors were initially sceptical about the capability of Hanna Nassif workers who had gained their experience on community executed works but subsequently both stated that they would use such workers elsewhere should the opportunity arise.

There has been some loss of trained workers finding more lucrative employment outside Hanna Nassif although this has not been a serious problem for Phase II. With the scaling down of construction activities a large percentage of the trained skilled and semi-skilled personnel have been able to find work elsewhere. (This is discussed further in 12. Training)

Table 9.10 shows the number of women working on the site in community and private contracts. More than 40% of the work days were carried out by women which is good achievement. The table also shows that more women worked under community contracts compared to working for private contractors. During the works however, the percentage of women reduced as is reflected in annex 9 and which was also reflected in Steering Committee meetings and reports. One of the arguments for a reduced participation of women in the workforce mentioned was that in the later stage of the project most work was water supply work and women seemed to have difficulty in digging trenches.

Table: Worker days (men and women) for community and private contracts, Hanna Nassif Phase II.

<table>
<thead>
<tr>
<th>Contracts</th>
<th>men days</th>
<th>women days</th>
<th>total worker days</th>
<th>% women days of total days</th>
</tr>
</thead>
<tbody>
<tr>
<td>community contracts</td>
<td>9 933</td>
<td>7 534</td>
<td>17 467</td>
<td>43</td>
</tr>
<tr>
<td>sub total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000

Private contracts

<table>
<thead>
<tr>
<th>Location</th>
<th>Private contracts</th>
<th>Private contracts</th>
<th>Private contracts</th>
<th>Private contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sala</td>
<td>1,278</td>
<td>722</td>
<td>2,000</td>
<td>36</td>
</tr>
<tr>
<td>Lukwati</td>
<td>1,262</td>
<td>572</td>
<td>1,834</td>
<td>31</td>
</tr>
<tr>
<td><strong>sub total 2</strong></td>
<td><strong>2,540</strong></td>
<td><strong>1,294</strong></td>
<td><strong>3,834</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>

Total **12,473** **8,828** **21,301** **41**

Lessons Learned

Work Planning and reporting

- Site inspections should be undertaken jointly by relevant project partners and an agreed record of that inspection produced and circulated.
- A site diary should be provided by site management and used. This should record site visits, progress and significant events on a daily basis. This record could also be used to record SIs and VOs.
- As built drawings are highly desirable especially as regards buried features such as foundations, reinforcement or pipe connections. The records should be produced as the works progress while memories are fresh and site management personnel are available on the site.
- A contingency allowance at design and estimation stage should be made to cover unquantifiable but probable obstructions to progress, especially during excavation.
- In Hanna Nassif technology choice of LB methods was not an issue. The densely packed buildings, narrow accesses and confined working areas would have almost completely precluded the use of mechanised methods except for specialised plant designed for restricted working spaces. It is understood that such equipment is not available in Dar es Salaam.

Site organisation

- It should not be assumed that a contractor has well-honed commercial or site management skills, especially in the case of small developing contractors (in this case Class VII contractors). The site management team may well be required to assume a direct technical assistance role as well as the anticipated supervisory role.
- Predictably, private contractors use a smaller workforce than used on equivalent community contracts with greater output and productivity extracted from that workforce. Less predictably perhaps, the workforce used on subsequent community contracts was significantly reduced. Although some of the later community contracts were different types of work such that a smaller workforce may have resulted in any case, there is a striking correlation between the increased commercial awareness of the CDA (resulting in reduction of work force) coinciding with witnessing the example of the private contractors.
- Care should be taken that the work force is not gender biased, especially when reductions in worker numbers appear to be largely by reduction of the numbers of women workers.
- Preconceived ideas regarding assumed capacities can be counter-productive. Examples are the private contractors doubting the ability of Hanna Nassif workers and the progressive doubts over the capability of women workers (during the course of the project these latter
doubts have been manifested successively about the capability of women to do one or another task - proof that women can do task A tends to be replaced by an assumption that they cannot do task B; currently it is expressed as ‘women can’t dig trenches’).

- Placement of students or trainees on a temporary basis while works are in progress could be an excellent way of familiarisation with LB techniques and community contracts.

**Division of work**

- The site management team should not only have specific duties, there should be some degree of overlap of duties or involvement in all site related activities such that there is acquisition of experience and coverage in the absence of other team members.

**Task rates and payment of workers**

- Task rates should be reviewed at regular intervals and for tasks which are nominally the same but clearly are subject to different situations (eg excavation of loose sandy material in a trench 1m deep is clearly much easier than excavation of waterlogged garbage in a deep excavation).
- There should be a clear decision as to how workers pay will be calculated - task work, piece work or whatever.

**Use of tools and equipment**

- Costs of purchase of tools (and materials) should be allocated preferably to all the contracts in which they are used rather than simply assigned to the single project which is ongoing when they were purchased. If this is not possible then a record should be kept showing that contract as having E/O costs.
- Good storage and maintenance of tools is necessary.
- There should be clear agreement as to the eventual use or ownership of the project tools (and, indeed, all project assets) at the end of the project.

**Works in accordance with the design**

- More expensive, higher quality construction materials may have been cost effective in the longer term. Conversely, cheaper materials require greater care in use and during construction.
- Greater attention could have been paid to supervision of construction and quality control by means of on-the-job presence of site management personnel.
- The standard of work executed by a ‘developed’ community such as Hanna Nassif is similar to that of a relatively inexperienced small contractor (and cheaper).
- Whilst desirable to achieve the highest realistically possible quality of work these highest standards may not be necessary for functionality and reasonable durability. The lowest acceptable quality must be that which meets these criteria (although it is a moot point that a higher quality of construction would make the product more resistant to maintenance neglect). There should a clear understanding of the difference of functional adequacy and cosmetics.
- Training in construction techniques should be phased to go beyond basic (adequate) techniques to more advanced techniques covering quality control and finishing works.

**Purchase and use of materials**
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000

- CDA were only directly involved in relatively minor procurement. It may have been desirable to have arranged involvement by CDA in major procurement, perhaps in partnership with UCLAS.
- Care should be taken in selection of suppliers and other acquisition procedures especially for major procurement (alternative quotations, short list of suppliers and so on).
- In the case of expensive items delivery to site of large quantities in advance of immediate need is not desirable, straining storage capacity and security arrangements. Draw down from the supplier is preferable.

**Earthworks**

- Backfill should always be compacted.
- Specific arrangements should be made for disposal of unwanted or unsuitable materials. Dumping and spreading immediately adjacent to the excavation is, in most cases, undesirable. This should be considered at design and estimation stage.
- Balanced cut and fill is unlikely to be achieved in similar urban works.

**Selection of workers**

- Fair selection of workers is important for acceptability by the community but balloting is not necessarily the only transparent system that may be used.
- Consideration should be given to whether conditions should be imposed upon the right of a private contractor to select his own work force in his own way and, if so, what are the implications of these conditions (it is not normal engineering practice that a contractor would be constrained in his management of his labour force, subject, of course, to compliance with national labour laws).

10. **INNOVATIVE TECHNOLOGIES**

10.1 **Technologies**

The outstanding works in Phase II comprise water supply (connection to the mains supply on Kawawa Road, water kiosks), roadworks and solid waste transfer facilities although it remains to be seen whether the funding situation will permit construction of all of these works. This limited scope of outstanding works and the very short remaining project period give little opportunity for further innovation under this project. Possible innovative (or alternative) techniques which have been considered for application or testing during Phase II are listed below with brief comments. In some cases these have been tested or implemented during Phase II and these are noted in italics.

- **Drainage Channels**
  
  *Lining with precast slabs* - tried early in the project but abandoned in favour of in-situ concrete due to the erratic quality of construction and poor load bearing capacity at the road edge.
  *Stone pitching* - cost of imported stone is high in Dar es Salaam due to long haulage distances and thus this technique was only undertaken in few locations although masonry has been used also to raise the level of the sides of some road side ditches on the approach to a raised soffit level of some culverts.
  *Half pipes* (concrete pipes cut longitudinally into 2 sections) - suitable concrete and earthen ware pipes are available in Dar es Salaam but are expensive.
Concrete base with plastered brick or blockwork walls - possible only where there is no loading adjacent to the drain structure.

- **Roadworks**

  Compaction - comparison of improved hand-rammer compaction, light vibrating compactor, introduction of simple on-site testing  
  Paving - viability of brick/block paving - high costs likely but experience elsewhere has shown good durability and relatively easy maintenance potential for conventional engineering brick or interlocking brick. For a more radical alternative, it has been pointed out during the course of this assignment that there are proposals to undertake trials of brick paving of roads using bricks manufactured from plastic waste materials.  
  Paving or reinforcement of sections subject to aggressive runoff or usage (eg junctions) including areas of change in crossfall/camber - high costs likely although deterioration at such locations in the absence of adequate maintenance could be rapid; the costs of such protection could thus be justifiable at key locations (eg near to main entrance to Hanna Nassif).  
  Consideration of earth roads - gravel is expensive in Dar es Salaam due to haulage costs although this option would have immediate maintenance implications and should only be attempted if a routine maintenance regime is in place

- **Materials**

  Stabilisation - lime, cement, chemical compound; there is body of evidence of such stabilisation techniques being successfully undertaken elsewhere although care would be required in handling and applying any of these additives in a crowded work site such as Hanna Nassif from a health and safety perspective.  
  Importation of higher quality murram  
  Mixture of murram and crushed stone  
  Possible benefits of purchase of better quality aggregate for concrete works

- **Structures**

  Examination of relative merits and ease of construction (cost, speed, quality, availability) of cast in situ and precast concrete cross drainage structures  
  Gabions - As evidenced by the underestimates of costs, construction materials, labour requirements and time periods required for construction, these techniques were not familiar to contractor, community, site management team nor COWI(T)Ltd, and in Tanzania were innovative technologies in the context of infrastructure provision in an unplanned settlement with closely packed, low quality housing compounded by steep slopes of unstable garbage.  
  Sandbags - As a means of erosion control suitably robust sandbags, in some circumstances with a protective covering of some sort (eg where used as steps by pedestrians in a narrow cascade between houses), could be used appropriately. Of similar concept to gabions but on a smaller scale, placing and fill materials should present little difficulty in a situation similar to Hanna Nassif and there are some examples of such placement by householders in Hanna Nassif to protect shallow house foundations from scour.

- **Employment Generation**

  Review all operations from the view of relative benefits of optimal or maximum use of labour and labour based methods including study of labour productivity and outputs achieved by contractors. This process is effectively started in this report and could be assessed further during evaluation as regards social and community benefits of these community-managed works. See also Annex 9: Overview of Estimated and Actual Workforce and Working Days.
• **Design and Specification**

*Review design standards and specification used in Hanna Nassif* - changes in standards could result in cost savings or improved construction methods (eg road widths, gradients for drainage channels, alignments). Again, this issue is discussed elsewhere in this report.

*Whole life costing* - in which cheaper initial treatments involving higher maintenance costs could be compared against treatments with higher initial costs but lower routine maintenance costs (to some degree maintenance-neglect resistant) (eg brick paved roads). Although not covered in this report project data is probably sufficient to support a study of this type which could be considered as a resource for evaluation.

10.2 **Lessons Learned**

• From an engineering viewpoint this project has constructed works by and large using well proven techniques which, subject to adequate quality control, are well documented as providing functional and durable products. Changes in methodology during the course of the works have been a response to problems encountered rather than as a designed, monitored trial.

• Community skills have gradually improved during the course of the project, Phase I and Phase II. Had alternative or innovative technologies been attempted with the intention of comparison of techniques, effectiveness of that technique might well have been a function of the level of community capacity development at that time and thus perhaps not a direct comparison.

• Consideration should be given as to which technologies should be tested during a capacity building exercise such as Phase II or, indeed, whether innovative techniques, if not fully documented as having been successfully undertaken in similar circumstances elsewhere, should be tested in this context at all. Such techniques must be fully replicable and acceptable in the project environment such that skills acquired by the community during the trial could be used subsequently (eg laying engineering brick paving for roadways is a technique that could be used in many situations - roads, car parks, restaurants, frontages etc; any special techniques required for laying bricks manufactured from plastic waste may have less immediate application; in the same way the acceptability and availability of these latter bricks may not be assured)

• The experience gained in the use of gabions in the Hanna Nassif situation has been valuable for all project partners and has occasioned more comment from outside observers than any other single engineering activity during the course of the project as it was not widely realised that this technique was appropriate in such an unplanned urban situation.

11. **COMMUNITY MAINTENANCE**

11.1 **Background**

10% of the value of the community executed works was earmarked for routine maintenance of the infrastructure constructed under Phase I and Phase II. Maintenance was suspended upon dissolution of the CBO as there was no authority for any collection of road tolls by the interim organisation (CDA). A local NGO, KIMWODA (Kinondoni Moscow Women’s Development Organisation) was then appointed by DCC under a contract to collect solid waste (to be funded by fees collected from householders receiving the service) and routine maintenance of open drains (cleaning rather than repairs). DCC then proposed a reduction in the area for which KIMWODA was responsible and as a result court injunctions were then issued which effectively suspended any collection of solid waste.

11.2 **Current Situation**
KIMWODA are now responsible for solid waste collection and cleaning of drains in part of Hanna Nassif although performance is reputedly poor or non-existent and no such work was observed during the course of this assignment. Some sections of drain are being cleaned either by frontagers or at the initiative of the zonal/neighbourhood committees (Hanna Nassif is divided into 12 such zones) using paid labour funded by householder contributions. However, it appears that all detritus removed from the drains is simply dumped on the adjoining road creating an unsuitable and insanitary road surface which either soon dries out and blows back into the drains or is simply washed back by the first storm. Further, in some areas it was noted that this dumping immediately adjacent to the drain created a longitudinal ridge along the road which impeded the transverse drainage of water from the road surface to the drain resulting in flow down the middle of the road with consequent erosion of the road surface.

The maintenance manual prepared by Pal Saetrum in 1997 and later updated in 1998 by Pal Saetrum, Mengisenyi Kasure and Bunmi Folayan will be revised to cover all Hanna Nassif Phase I and Phase II infrastructure under a separate consultancy.

### 11.3 Funding Mechanisms

As noted above it was intended that 10% of the value of community contracts was earmarked for routine maintenance although there is a backlog in payment of this percentage (which in practice appears to be calculated as 10% of materials costs rather than of total contract value ie approximately 8% of contract value) to the CDA. This backlog has been variously quoted as ‘a few million TSh’, ‘between 6 and 7 million TSh’ and ‘paid up to contract 10’ (this latter being estimated as between TSh3.66 million and TSh 5.32 million depending whether that particular contract is paid or not) and there is no provision for payment of any such backlog in any of the various estimates estimates for costs of completion of project works and payment of commitments. Be that as it may, CDA resources have been previously mobilised to clean ditches including transportation of excavated material off site.

However, with the cessation of community contracts funded under the project, this source of income will cease (or has already ceased if no provision is made for payment). Various possible modalities for funding of continuing CDA activities have been investigated by UCLAS and the following details are based upon information collected during this assignment plus notes produced by Dr Meshak of UCLAS):

- **Road Toll** collection has ceased. Authority has reportedly been granted to CDA to re-introduce such road tolls although it is not clear whether such authority is dependent upon elections for the CDA which, in turn, must wait for the general election scheduled for October 2000. Suggestions have been made that CDA could introduce ‘gate fees’ as an interim measure. The practicality or legality of this suggestion are presumed to be suspect as it has been under discussion since at least October 1999 and nothing has been put into place. Revenue from the road tolls was reported to be TSh150000 per month from a gross collection of TSh400000 per month although future collection may be more difficult given the poor state of some roads which have been deleted from the proposed works due to budget cuts.

- **Property Tax** could be collected by CDA as agents for DCC. Agents typically retain 5% of revenue (net after deduction of collection costs). In Hanna Nassif the revenue would be of the order of TSh 5000x2000 households: TSh 10000000 per annum which would render commission of some TSh 500000. CDA could use zonal committees for collection.

- **Development Levy** is raised upon head of adult population. For Hanna Nassif the revenue is estimated at TSh 2300x8000 persons: TSh 18400000. Should CDA be nominated as
collection agents the typical retention after deduction of collection costs is reported to be 15% ie TSh 2760000/annum although this levy is possibly more open to evasion than the previous property tax. Possible disadvantages of this and the previous possibility would be the community perception of the CDA as tax collector.

- The Water Supply system should raise revenue from selling water from the various kiosks and it was originally suggested that 10% of this source could be retained. However, a recent study by Arjen During and John van Rijn on training needs in connection with the water supply system has raised doubts about the profitability of the various options for operation of the system and further consideration of the modalities has been suggested. Further, it appears likely that not all the planned kiosks will be constructed which will obviously reduce revenues.

- Environmental Maintenance contributions paid at the beginning of each year could raise up to TSh800000 per year (levy of TSh1000 per resident) although presumably waste collection would have to improve if this source of revenue were viable.

- Waste Collection is the responsibility of KIMWODA for part of the Hanna Nassif area. CDA could take up collection responsibility in the remaining area and a revenue of TSh2400000 per year is estimated (plus this venture could generate sizeable continuous employment)

- Note that any surplus accruing from the Hanna Nassif Credit Scheme is not considered in this context as it is intended that any such funds will go back into this scheme whether or not the scheme is expanded with Ford Foundation support.

Collection costs and modalities have not been studied in detail and CDA does not have an administrative system which could handle large scale revenue collection or management of civic functions with concomitant requirements for transparency and accountability. However, KMC has stated their support to CDA and Hanna Nassif in this context although the nature of this support has yet to be detailed.

11.4 Lessons Learned

- Cleaning drains and disposing of the removed material by simply dumping on the adjoining road is a temporary expedient which benefits only the drainage system and which adversely affects the utility and durability of the road.

- Solid waste collection (and drain cleaning) cannot function adequately unless arrangements are made for transport of such materials away from Hanna Nassif including construction of transfer stations in Hanna Nassif.

- Greater care is required to ensure solid waste collection contracts are actually executed and that further arrangements are required to ensure coverage of the whole Hanna Nassif area.

- Householders can effectively be mobilised to clean drains. Such mobilisation could logically be extended to all zones of Hanna Nassif.

- Adequate funds are a pre-requisite for routine maintenance in the longer term and there are not only no immediate plans for revenue generation, there are also outstanding payments due to the CDA for at least some of the completed community contracts.

- Further study is required on funding modalities and practicalities of introduction of some (or any) of the proposed revenue sources plus associated training needs, organisation and structure that such functions would demand of CDA.

- Discussions should be held with KMC to determine the details of possible support to maintenance of CDA operations. The KMC Management Committee should be invited to visit Hanna Nassif as only a few members of that committee are familiar with the project or with Hanna Nassif.
Consultancy on Contracting and Labour Based Works  
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09  
July/August 2000

- Modalities for operation and financial arrangements for the proposed water supply system require careful reconsideration.
- Despite evidence of some routine maintenance being undertaken on an ad hoc basis, the roads and drainage systems cannot be sustained indefinitely without a functioning maintenance system in place, although no serious repairs or periodic maintenance should be required in the immediate future.
- Routine maintenance should be well within the technical capacity of the community (although some specific training may be desirable in certain aspects of maintenance) but periodic maintenance and perhaps emergency repairs may require some higher level technical inputs.
- It is very late to be considering revenue-related sustainability issues at this stage in the project that is programmed to cease in September. Even if it is possible to identify and agree revenue modalities it will be impossible to operationalise such functions in the remaining project period.
- Although specifically not considered as a source of revenue the credit scheme has proven to be a consistent generator of funds which could, under different conditions of operation, be used for this purpose.
- Construction of community-benefitting assets by the community (CDA) using community labour does not automatically bestow any sense of ownership or obligation to maintain those assets.

12. TRAINING PROGRAMME

12.1 Review of training provided under the project

A total of 31 training course are recorded as having been carried out under Phase II. In excess of 1243 trainees (some persons will have attended more than one course such that the actual numbers of persons benefiting from training will be less than this) have attended courses spread over more than 177 training days (records are not complete as may be seen from Annex 8: Training). These courses cover issues which have been broadly categorised as:

- Community and CDA issues
- Civic and general functions
- Solid waste and environment
- Administration and management
- Construction of works and maintenance.

An interesting feature of the training is the relatively high proportion of the work force who have acquired high-level skills. 17 skilled and semi-skilled workers are now, with the run down of project construction activities, coming on to the employment market. Of these, only 3 have not been able to obtain employment outside Hanna Nassif and 8 of them now have full time employment. Further details of these workers are set out in Annex 8: Training.

12.2 Further training needs

The remaining project life is short (until September 2000) although there may be a phasing out of TA assistance to CDA over a further 6 month period. The time remaining for further training is thus limited but there are certain functions, tasks and obligations to which the CDA is already committed. Training for these aspects is thus classed as 1st priority and this covers water reticulation systems, routine maintenance and civic functions (although the latter training would probably have to be delayed until after the CDA elections expected after November 2000). Further desirable training but of lower priority would cover contract management and community contracts as a refresher course and in preparation of the community for post-TA
continuation of involvement in contract activity - construction and other contractual activities (e.g., solid waste collection).

12.3 Lessons learned

- A certificate or other documentary evidence of attendance should be presented to successful trainees including those who have participated in on-job training.
- Training in functions which are completely predictable (e.g., routine maintenance of infrastructure) should be undertaken during the mainstream of the project, not a late activity, or even as an oversight.
- The project has witnessed development of community capability, institutionally and individually, over a long project period. A training needs assessment, which is essential for the development of a training programme but such an assessment undertaken at the outset would identify very different needs from those identified in a similar later assessment. Thus, a responsive programme should be reviewed at regular intervals and adapted as the project progresses.
- The capability needs of the community for the management of a long term service (e.g., solid waste collection or water supply service) are very different from those for management of a short term construction contract. Training should reflect these differences.
- Training and training materials must be produced and presented in the vernacular (in this case KiSwahili).
- The most effective training is by direct practical example (e.g., on-site or on-job training).
- If a community representational body develops institutionally as per project aims, training must cover the wider civic functions and institutional framework within which this body must function (i.e., civic functions).
- A competent site management team is a prime resource for technical training.
- Small private contractors are not fully experienced and would benefit from focussed training.

13. IMPACT OF COMMUNITY MANAGED LABOUR BASED WORKS

13.1 Impact of works on Hanna Nassif residents

Apart from the ‘profitability’ aspects of the community involvement in the project (see 8.6 above) there have been other consequences. It is not clear to what extent the community shares the commitment of the CDA and judged on lack of maintenance in certain areas of Hanna Nassif this commitment is not universal. Also there was provision for community contribution towards Phase II (although it is not clearly understood, certainly by this consultant, exactly what form of contributions were envisaged in Phase II; this uncertainty seems to be shared by TST). Apart from contributions to some of the footbridges over roadside drainage ditches and some zonal mobilisation for drain cleaning, no contributions appear to have been made.

13.2 Impact of works on the environment

It was previously observed that the self cleaning function of the Hanna Nassif drainage system deposits waste into Mzimbazi Creek where it builds up. There is also direct tipping in the creek flats by local residents. There is occasionally sufficient water flow in that river to flush out the accumulated waste deposits which are carried out to the tidal area of the creek towards the bay. There are tell-tale blue plastic sacks to be seen in the tidal area of the creek and on the beach alongside Ali Hassan Mwini Road. The greater part of the waste must therefore be eventually swept out into the bay although this situation is obviously environmentally unacceptable. The
obvious solution is for solid waste collection in Hanna Nassif to be reinstated as soon as possible (and preferably before the longer rains begin again in November/December).

There is a continuing problem of persons discharging raw sewerage into the roadside drains either directly from toilets or as overflow from septic tanks. This is an obvious health hazard as well as a dis-incentive to persons cleaning these drains. Bylaws provide for measures to be taken to remove this nuisance although negotiation and sensitisation of the offending householders is suggested as a first step rather than immediate blocking of outlets. A consequence of this discharge is that a cracked private water supply pipe which passes through a polluted zone could be contaminated by the sewage. The householder’s water supply would thus be impure.

Conversely, the drainage system is working well with only short periods when the drains are running at full capacity and with only very localised over-topping. Flooding within the settlement has reduced significantly and this reduction in standing water has inhibited mosquito breeding and malarial infection.

13.3 Labour policies and practices

All the points noted below relate equally to private and community contracts unless otherwise stated.

Recruitment

Many more persons applied for employment on community construction works than there were unskilled posts available. Applicants’ names were recorded, collected into groups and each week these groups were rotated such that an applicant could expect to work one week out of 2, 3 or 4 depending upon the number of applicants and contract needs. Balloting of workers did not take place.

Workers for the private contracts were selected differently. It was agreed that wherever possible workers would be recruited from Hanna Nassif and all applicants presented themselves on the first day. They were then selected by the CDA based upon the contractors stated requirements. Any subsequent recruitment was undertaken by the private contractor’s foreman without reference to CDA. Rotation of workers did not take place. Both contractors were initially sceptical about the capability of Hanna Nassif workers

Wage setting

Wages were set at the national minimum.

Basis of remuneration

Task rates for community works were as set out in Table 9.4.1. and the workers engaged on these contracts ceased work for the day when the task has been completed.

It was agreed that the private contractors would use the same task rates and wage levels as used for community contracts. However, the workers on these contracts were expected to continue working for full day, even if they had completed the set task and they would receive pro rata payment for the number of tasks completed, effectively piecework.

Remuneration in kind

All wage payments were made in cash. No remuneration was made in kind.
Protection of the wage payment

Wage payments were generally timely. There are no records of problems arising from late payment or alleged incorrect payment of wages and site attendance records have been examined for most working weeks of community contracts and private contracts. The attendance sheets were completed by the site supervisor and signed by the worker as evidence of receipt of wages.

Attendance

Payment was only made for attendance on a day when a specified task was successfully completed. It was always clearly understood that workers were intended to attend for work on all days within the agreed period of employment although initially there was some absenteeism. In some cases workers who were absent on a regular basis were dismissed, or at least were not included in rosters for future work. There was, however, no specified level of absenteeism which would automatically lead to sanctions; this was judged on a case-by-case basis by CDA and the site management team. No incentives were paid to encourage better attendance.

Other labour regulations dealing with wages

UCLAS/TST with ILO/ASIST backstopping ensured that CDA and the site management team were aware of national labour laws and international good practice. No underage workers were employed. No sick leave, maternity or holiday leave was paid and only guards were employed for a 7 day working week. No overtime or premium was paid.

Motivation and discipline

No bonus system was installed in Phase II. Discipline was not normally an issue as the workers (all of whom were recruited from Hanna Nassif and thus most of them were known to their colleagues) usually responded to intense peer pressure (especially from women workers) to reform any misbehaviour or unreliability.

Management and supervisory training

As may be seen from Annex 6:Training, many courses have been organised during the course of Phase II. However, supervision of the works has, for various reasons, been a recurrent problem (although it must be clearly stated that the quality of the regular site management personnel was, on the whole, very good). See also 5.design and Procedures.

Health and Safety

The safety record during Phase II has been good with only a few recorded minor injuries. First aid facilities were on site including an attendant. Protective clothing was available although only issued when considered necessary (eg waterproof boots) although some workers declined to use this equipment. The private contractors had limited H&S equipment and normally relied on the loan or hire of CDA equipment. Drinking water was provided at all sites. No latrines were made available.

A point of note is that certain working situations in Phase II were inherently hazardous. Foul water discharge was present in most water courses and drainage channels. Outfall excavation particularly was often through a great depth of waterlogged refuse tipped on steep slopes. Deep excavation was sometimes necessary, in some locations close to buildings shallowly founded on the same highly compressible tipped waste material. This presented a fundamentally risky
situation for workers, onlookers - usually children, and householders which had to be taken seriously during construction.

**Social security and insurance**

The national social security system appears to be unreliable and out of date such that workmen’s compensation insurance was provided by the project (cost TSh391354) although not from the outset of Phase II.

**Duration and termination of employment**

Skilled, semi-skilled and trainee workers tended to enjoy continuity of employment during the contract periods. Unskilled workers worked one week out of 2, 3 or 4 depending upon the numbers of persons seeking work and the construction work requirements. The workers were fully aware of the conditions and duration of their employment.

**Right of Association**

Beyond the formation of CDA/CBO there was no formation of a workers representational body of any kind. In practice the CDA was both employer and workers organisation although it is understood that no serious problems arose from this ambiguity.

13.4 **Impact of contracts (community and private contractors) upon community organisation and negotiation capacity**

There is no doubt that the CDA (and the involved community as a whole) has grown in confidence regarding their technical and organisational capability especially as a result of comparisons made with the performance of the private contractors. The CDA is a decision-making body with a strong chairman. However, a committed CDA must not be assumed to be the same thing as a committed or united community; there are strong divisions within Hanna Nassif and the elections scheduled for later this year may resolve or crystallise these divisions.

13.5 **Lessons learned**

**Impact on Hanna Nassif residents**

- Information dissemination and consultation procedures are an important factor in project implementation. Particular groups (eg women, youth) require specifically targeted communication and consultation mechanisms.
- The CDA must be seen to be fully accountable to the community for decisions taken and thus must be fully involved in all aspects of project implementation.
- The representative status of the various community bodies (CDA, CDC) has been the subject of litigation and implementation delay. Legal status of representative bodies and their relationship with local government institutions should be defined as clearly as possible during project preparation.

**Impact on the environment**

- A functioning solid waste collection service is fundamental to environmental protection.
- The community requires more sensitisation as to the importance and implications of random tipping of solid waste and tipping into surface water drains, unauthorised
connection of foul water overflows to the drains and the possible results of poor quality or damaged water supply connections being contaminated.

- It is understood that UCLAS is already researching possible low-cost treatment systems that may be appropriate for urban unplanned settlements such as Hanna Nassif. This approach is endorsed as it is not practical to expect widespread construction of other facilities in Hanna Nassif and unauthorised discharge of foul water into the surface water drainage system will continue.
- Bylaws should be drafted if necessary. These should be enforced.
- Ingress of pollution into a badly laid water connection is a very real hazard.
- The functioning of the surface water drainage system should be monitored and any areas of occasional overtopping should be identified. Remedial measures, if practical, should be identified.

Labour policies and practices

Recruitment

- In urban unplanned settlements surplus labour is always likely to be available.
- There is no evidence of any inward migration of workers from outside Hanna Nassif as the CDA took steps to ensure that all workers were residents from the settlement.
- A transparent, equitable, agreed and understood system for recruitment is essential.
- Community consultation and sensitisation is an essential pre-requisite to acceptable recruitment practice.
- The gender balance of the workforce requires constant monitoring and possible affirmative action. Sensitisation is an important consideration.
- All labour used in construction was paid labour. Careful consideration should be given as to whether voluntary or unpaid labour is practical or desirable.
- There were no contracts of employment although the conditions of employment were clearly explained to all workers.

Wage setting

- No wages less than the national legal minimum should be paid.

- Single day task rates were set with equal payment for all tasks. There was, however, a de facto division of labour between men and women (eg women transported concrete in headpans, men mixed that concrete) although in most cases this was overcome by setting a group task rate.

Basis of remuneration

- The work norms were discussed with the workers and CDA but normally only appreciated as high or low during the course of the works.
- Publication of task rates (eg on a notice board) may have been desirable.

Protection of the wage payment

- The system of requisition of funds for labour and materials costs before works commenced ensured (as long as the estimate was reasonably accurate) that wage payments were not delayed.
- Good record keeping is essential.
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000

- Potential knowledge of the identity of workers both to the supervisor and among the work force tends to reduce possibilities of delinquent behaviour and also exorcises ghost workers from the payroll.

Attendance

- Peer pressure is an important factor in ensuring regular attendance, especially where group tasks have been set.

Other labour regulations dealing with wages

- Although no serious injuries resulted from Phase II works, arrangements for dealing with workers compensation and/or treatment costs should have been clearly agreed at the start of Phase II.

Motivation and discipline

- Transparency, fairness and peer pressure are probably the most important considerations.

Management and supervisory training

- The quality of direct site management of construction is a major factor in the success of Phase II.
- Secondment of technical personnel from outside the project implementation team (e.g., from KMC) could give a valuable contribution to project execution as well as sensitising and informing the parent organisation from which this person was assigned.
- Supervision training is desirable at various levels.

Health and Safety

- There is little functional legislation on H&S in Tanzania and thus the discretion and knowledge of safe working construction practices on the part of the site management team is important.
- Greater attention should have been paid to ensuring that private contractors supplied protective clothing and maintained first aid facilities on the site.

- Deep excavation of unstable material on steep slopes immediately adjacent to structures with shallow foundations is a recipe for disaster. Very great care is required.
- More protective clothing should have been made available and use of this equipment by workers should, perhaps, have been mandatory.

Social security and insurance

- In the absence of an adequate functioning national scheme (e.g., compensation levels have not been raised for very many years during which the currency has devalued by a huge factor) normal practice is for an injured worker to have treatment costs, but not necessarily compensation, paid by the employer. In these circumstances as adequate worker compensation insurance is most desirable (and not especially expensive).

Duration and termination of employment

- Although workers were fully aware of the duration and conditions of their employment on the project, there was a perception that national legislation was irrelevant.
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000

- The question of whether the unskilled workers were ‘casual’ or ‘temporary’ was not considered.

**Right of Association**

- It is not clear whether any positive steps were taken during the preparation for or course of Phase II to consider assistance with the formation of a workers representational body or for sensitisation of the Hanna Nassif workforce. Certainly no such body was established at any level.
- There are networks of CBOs being formed in Tanzania and the Hanna Nassif CDA has been exposed to contacts with other similar bodies in Tanzania.

**Impact of contracts on community organisation and negotiation capacity**

- The community has gained in confidence during the course of the project, especially during the period in which private contractors were working in Hanna Nassif. There was a rapid appreciation of commercial benefits gained from reducing the work force and this was manifested in subsequent community contracts.
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000
14. OPTIONS & RECOMMENDATIONS FOR REPLICATION OF LABOUR BASED WORKS

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>SUB-ISSUE</th>
<th>OPTIONS &amp; RECOMMENDATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESIGN &amp; PROCEDURES</td>
<td>Design</td>
<td>In this context design is taken to include drawings, technical specifications and BOQ • Consideration should be given to the means of obtaining an accurate design, comprehensive BOQ and appropriate contract documents. It is possible that the implementing organisation may have this capability ‘in house’, but it is more likely that outside design services may be sought as a high level of expertise will probably be needed which may not be within the capacity of the implementing organisation. Should these services be provided by an outside body (eg consulting firm) then this body must be well experienced and accessible so as to be able to respond to necessary design changes and take a full part in the long consultation process with the community • In selecting the designer and design modality care should be taken in preparing an accurate and comprehensive briefing for the designer such that the aims and intentions of the project are clearly understood • The implementing organisation must have the ability to appreciate and critically appraise the proposed designs • Programming must allow a considerable period for consultation with the community and evolution of final detailed design. Any contract or agreement with the designer must have the flexibility and provisions to deal with this possibly extended input and must be budgeted accordingly • The appropriate local government body with (possibly abrogated) responsibility over the project area must be brought into the consultation (and possibly approval) process at the earliest possible opportunity (and, probably will be a member of the Steering Committee) • If a preferred technology or methodology has been chosen then the design should be appropriate for that choice. If not then the design should be technology neutral • Very close attention should be paid to the principles involved in mitigation of possible adverse effects or disadvantages to any member of the community as a result of the chosen design. Mitigation or compensation principles must be agreed with the project partners at the outset.</td>
</tr>
<tr>
<td>Design procedures - roles of project partners (contracting authorities, community representatives, consulting engineer, and support agency)</td>
<td></td>
<td>A clear system should be set up for dealing with design changes found to be necessary during the course of construction. This system must have regard to project implementation structure, the degree of involvement by the designer, capability of site management and so on</td>
</tr>
<tr>
<td>ISSUE</td>
<td>SUB-ISSUE</td>
<td>OPTIONS &amp; RECOMMENDATIONS</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>---------------------------</td>
</tr>
</tbody>
</table>
|       | Roles of project partners in supervision and approval of works | • Careful consideration should be given to the desirability of a continuous, coherent technical thread throughout (logically through the tendering, contractor selection, measurement and certification of works). This could be achieved, for example, by the designer (say, a consulting firm) being directly involved in all aspects of the contractual and construction process or seconndment of consultants personnel to the implementing team or ensuring experienced site management staff in the implementing team. Whatever modality is chosen the key themes are technical competence on site, accessibility and involvement of the designer and an adequately resourced arrangement.  
• The funding agency will presumably be represented in the Steering Committee or other guiding body. Under no circumstances should contractual commitments, especially financial commitments, which are outside any delegated powers or budgetary license which may have been granted to the implementing organisation, be made unilaterally by the implementing organisation. For this reason consideration should be given as to which project partners should be parties to or signatories of contracts. |
<p>| WORKPLAN | Timing of construction activities | • Although a workplan will be worked out early in the project period this should be updated at, say, yearly intervals when a more detailed programme may be produced for the coming year. This regular review and update gives the flexibility to respond to changing external circumstances and increasing community capacity. The workplan must have adequate provision for the build up to start of construction activities - a long process of animation, consultation, organisation and training. This can be a very long process. Do not assume that a small contractor can work any faster or produce better quality work than a ‘capable’ community. |
| TENDERING PROCEDURES | Packaging of works | • Really a function of realistic work planning, packaging should be responsive to community capacity (eg do not be too ambitious too soon or there is a danger that the community will be discouraged but conversely do not underestimate what the community may be able to attain during the course of the project) |
|       | Tender documents | • The first priority is to decide what format of contract documents are to be used for community and private contracts. Preparation of tender documents tends to be a rather specialised activity, especially if one of the bulkier conventional formats is selected and it is suggested that the simpler formats could be more appropriate for all project partners. |
|       | Tendering procedures | • Transparency is essential and thus national recommended procedures should be followed in the case of private contracts. |</p>
<table>
<thead>
<tr>
<th>ISSUE</th>
<th>SUB-ISSUE</th>
<th>OPTIONS &amp; RECOMMENDATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultancy on Contracting and Labour Based Works</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>July/August 2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ISSUE</strong></td>
<td><strong>SUB-ISSUE</strong></td>
<td><strong>OPTIONS &amp; RECOMMENDATIONS</strong></td>
</tr>
</tbody>
</table>
| | Shadow tendering of community contracts | • A plan for phased commercial involvement of the community in contracts should be drawn up early in the project with the aim of achieving full commercial parity with private contracts well before the end of the project period  
• Should it be agreed that the community will receive a ‘profit’ or retention payment (before actually achieving profit on the phased commercialisation of community contracts) it should be clearly agreed what will be the basis for calculation and payment modality including frequency and timing of payment |
| | Works in accordance with community contract specifications | • In a densely packed habitation such as Hanna Nassif care is required such that the design is based upon an accurate survey. |
| | Works in accordance with private contract specifications | • It is important that significant quantities are not omitted from contract documents |
| | Facilitation of improved work - contract documentation, supervision, training | • Informed tender evaluation is essential  
• A project that involves contractor development should not permit a contractor to make a clear loss and on the other hand must be wary that unacceptable enhanced profits are not generated. Particular attention should be paid to explaining contract and tender documents to contractors before tendering takes place and possible mentoring arrangements should be implemented |
| | Perceptions of project partners on community and private contracts | • Project partners should be briefed on previously executed projects and the results of community development and activities during project preparation |
| | Outputs /actual and estimated) - time period, quantities, costs | • The community should be involved in procurement at the earliest possible stage of the project  
• Private contracts should have special provisions for employment issues  
• Should private contracts and community contracts be envisaged then consideration should be given of ‘benchmarking’ of community ‘profits’ against comparable private contract rates and profits |
| | Profitability - economic and social perspective | • Project preparation should collect baseline data such as property values, traffic figures, business activity in the area of influence of the project |
| | **CONTRACTS** | |
| | **USE OF LABOUR BASED METHODS AND SITE ORGANISATION** | |
| | Work planning and reporting | • Records are essential. As a part of the agreed site management procedures already mentioned a comprehensive site diary must be maintained  
• As built drawings should be prepared as the works progress  
• Choice of technology is fundamental |
| | Site organisation | • Many of the recommendations come back to the quality of the site management team. This team (however constituted) must be well experienced in hands-on site organisation and supervision  
• Gender balance among the workforce can only be achieved by affirmative action. This would require sensitisation from the outset and a clear agreement with the community representational body to this principle |
<table>
<thead>
<tr>
<th>ISSUE</th>
<th>SUB-ISSUE</th>
<th>OPTIONS &amp; RECOMMENDATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division of work</td>
<td>• As in any management team, there must be allowance for coverage of absence of personnel. This could be difficult in the case of experienced technical staff and tends towards involvement of a consulting firm who could guarantee coverage for key staff (unless of course the implementing organisation had its own in-house capability eg university)</td>
<td></td>
</tr>
<tr>
<td>Task rates and payment of workers</td>
<td>• There should be clear agreement regarding the system to be used (eg individual task rates, group task rates) and a clear procedure for adjustment of these task rates as experience is gained. This may require considerable discussion with the community</td>
<td></td>
</tr>
<tr>
<td>Use of tools and equipment</td>
<td>• A simple system for estimation, procurement and payment for tools and equipment (and of workers wages) should be designed in consultation with the community. These systems must be clear and transparent&lt;br&gt;• A project store should be established in which all tools, materials and equipment are stored when not in use. Training should be given in stores management and inventory control. Wherever possible large quantities of new or expensive items should not be kept on site unless security is assured. Draw down as required from a supplier puts the onus of security on to the supplier&lt;br&gt;• There should be early agreement (project document perhaps) as to the recipient of all project assets at the end of the project. This agreement should be endorsed by all project partners and publicised in the community</td>
<td></td>
</tr>
<tr>
<td>Works in accordance with design</td>
<td>• Aim high in terms of quality right from the start. Make an exhaustive study of locally available materials and costs and concentrate on training in a series of phases aimed at increasing quality</td>
<td></td>
</tr>
<tr>
<td>Purchase and use of materials</td>
<td>• The community should have phased responsibility for procurement in step with expansion of commercial awareness and commercialisation of community contracts</td>
<td></td>
</tr>
<tr>
<td>Earthworks</td>
<td>• In an unplanned settlement a large proportion of excavated material is likely to be unsuitable. Make sure that there is adequate provision for dealing with this material; either transport to a suitable dump outside the community or an adequate area to dispose within the community area&lt;br&gt;• Whatever method is chosen to compact earthworks, they must be compacted, even sandy soils in relatively shallow fills (eg pipe trenches)</td>
<td></td>
</tr>
</tbody>
</table>
### Options & Recommendations

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>SUB-ISSUE</th>
<th>Options &amp; Recommendations</th>
</tr>
</thead>
</table>
| Selection   | Selection of workers | - In an urban area there are always likely to be more applicants for work than posts available (if there are not then something is wrong - wage payments too low? Task rates too high?). Whatever system is chosen for worker selection it must be fair, transparent, understood and agreed by the workers and the community, allow for some sort of rotation of workers to share the work and be executed by the community.  
- Urban infrastructure provision and maintenance is unlikely to generate huge employment in terms of work days unless there is a continuous operation involving a large work force (eg street sweeping, solid waste collection). Contracts for construction of infrastructure tend to be relatively small workforces (around 50 or 60 workers per work front) due to the restricted working conditions in unplanned settlements and the non-continuous works.  
- Conditions of contract for private contracts should have specific provision for workers conditions and duration of employment, selection, welfare, wages, task rates etc. |
|             | Technologies       | - Consideration should be given as to whether a project designed to give a community skills which can be used commercially should be teaching techniques which may not be certain to be acceptable in the wider market  
- If trials of different techniques are going to be undertaken then thought should be given as to how to assess success of that trial as the community capability will, hopefully, not be static during the course of the project. |
<p>| Background  | Background          | - Arrangements for maintenance (and, indeed, continuation or sustainability of any project activities) should be an integral part of the project design with plans for modality, training, funding and so on. If, during the course of the project these plans are seen not to be progressing then the project aims and activities should be reviewed. |
| Current situation | Current situation | - Immediate reinstatement of road tolls and extension of current zonal mobilisation for clearance of roadside ditches and main drain |
| Funding mechanisms | Funding mechanisms | - Any project involving community development should attempt to implement credit schemes, with perhaps some of the generated funds being used for maintenance of infrastructure |
| Review of training provided under the project | Review of training provided under the project | - A training needs assessment should be carried out early in the project and a training plan drawn up for the project as a whole. This assessment and plan should be reviewed each year and amended as necessary |
| Further training needs | Further training needs | - Wider aims, possibly going beyond immediate project needs, should be considered in the training plan (eg civic functions, accounting, business skills, management) |</p>
<table>
<thead>
<tr>
<th>ISSUE</th>
<th>SUB-ISSUE</th>
<th>OPTIONS &amp; RECOMMENDATIONS</th>
</tr>
</thead>
</table>
| IMPACT OF LABOUR BASED COMMUNITY MANAGED WORKS | Impact of works on Hanna Nassif residents | • Some form of assessment of community institutions and characteristics should be undertaken as a part of the feasibility studies. This assessment should be developed in project preparation and could cover specific work-related issues such as organisational and institutional structures (if any) in the community, availability of labour, technical and administrative skills  
• Details of beneficiary or community contributions should be agreed as an integral part of the project design. If possible physical contributions should be collected up front (eg materials, land, pledges of labour)  
• The project team (ie non-residents of the community) must not be involved or identified with a particular group |
| | Impact of works on the environment | • Solid waste management is a fundamental consideration in urban unplanned settlements which impacts upon most infrastructural provision and maintenance activities. It may be desirable for the project to include this as specific project activity or aim  
• Similarly, water supply and perhaps, power supply should be included in a similar project |
<table>
<thead>
<tr>
<th>ISSUE</th>
<th>OPTIONS &amp; RECOMMENDATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour policies and practices</td>
<td>• Recruitment - is it practical or fair to expect voluntary labour to construct infrastructure? Would unpaid labour generate any increased ownership of the assets thus created?</td>
</tr>
<tr>
<td></td>
<td>• Wage setting - the national minimum wage should be the benchmark, but there should be investigation of market rates for unskilled workers (eg in Dar es Salaam unskilled workers commonly receive less than the national minimum). In some circumstances it may be correct to pay more than the legal minimum (eg out of date national minimum)</td>
</tr>
<tr>
<td></td>
<td>• Protection of the wage payment - it is important that workers are paid on time whatever system is set up. This is an absolute pre-requisite. Also, there should be a good, simple method of recording attendance and payment of wages. Wage rates should be publicised</td>
</tr>
<tr>
<td></td>
<td>• Attendance - procedures should be set out and agreed with the community regarding absenteeism (eg absence of 2 days in a week would result in no further employment after that week but NB the worker would receive payment for the days attended)</td>
</tr>
<tr>
<td></td>
<td>• Management and supervisory training - it should be recognised that it is not only the community who learn and improve in capability during the course of the project. The other project partners will also acquire new skills and techniques as a result of their participation</td>
</tr>
<tr>
<td></td>
<td>• Health &amp; Safety - training should be given in safe working practices and these should be employed on site</td>
</tr>
<tr>
<td></td>
<td>• Social security - appropriate workers compensation insurance should be arranged by the project at the beginning of construction activities</td>
</tr>
<tr>
<td></td>
<td>• Right of association - perhaps development of a workers representational body should be written into the project aims</td>
</tr>
<tr>
<td>Impact of contracts (community and private contractors) upon community organisation and negotiation capacity</td>
<td>• Increasing commercial awareness can result in a trade-off against other factors (eg employment generation) which should be considered in selecting project priorities and outputs</td>
</tr>
</tbody>
</table>
ANNEX 1

TERMS OF REFERENCE
Consultancy on Contracting and Labour Based Works  
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09  
July/August 2000

Terms of Reference

John Clifton  
Study on contracting and labour-based works  
Hanna Nassif project Phase II  
18 July - 3 August 2000

Issues to be addressed

1. Follow up on former missions

2. Design and procedures
   - Review design and appropriateness of labour based, community managed implementation. Provide guidance for future labour based community managed design. The experience from COWI in making participatory designs should also be taken into account.
   - Review design procedures (changes in design) and the roles of the community representatives (CDA or CC), contracting authority (UCLAS-NIGP, City Council) and support agency (COWI-ILO).
   - Review the supervisory role of COWIconsult, UCLAS, CC, DCC in the construction and the approval of works carried out under community contracts and private contracts (what has happened so far and how best to organise it in the future?).

3. Work plan
   - Review the timing of the construction activities in the work plan (review the logical order of construction and the maximum number of contracts that can be handled simultaneously by COWIconsult, UCLAS and the community). Make recommendations on how best to organise the work plan in the future.

4. Tendering procedures (private contracting)
   - Review the packaging of works and selection of contractors. Make recommendations for the future.
   - Review the tendering documents and recommend ‘standard’ documents for future use.
   - Review the tendering procedures, and in particular the role of COWIconsult, UCLAS, DCC and the community (beneficiaries, contracting authority, contractor, funder, support agency). Make recommendations for the future.
   - Review and make recommendations on the proposed shadow tendering of community contracts.

5. Contracts
   - Review if the works are carried out as specified in the community contracts.
   - Review if the works are carried out as specified in the private contracts.
   - Make recommendations for improvements in the contract documentation (community and private) and/or supervision and/or training that might facilitate improved works.
   - Assessment of city commission and CDAs view on works carried out under private contracts and community contracts (is there a preference?).
Achievements in time, quality and costs of private and community contracts.
- Assess which contracts (private or community) have been the most profitable (from an economic and social perspective) and analyse the result.
- Make recommendations on future use of community and private contracts and provide appropriate standard contracts and references for future users.

6. The use of labour-based methods and site organisation
- Analyse how the works have been carried out (have former recommendations been used?) and assess if the works have been carried out cost effectively and durable. In particular look at:
  - Work planning and reporting
  - Site organisation
  - Division of work between client-engineer, site-engineer, foremen, and workers
  - Task rates and payment of labourers (are workers paid the same wage under private and community contracts?)
  - Use of tools and equipment
  - Carry out the works according to design
  - Effective and efficient purchase and use of materials
  - Earth works (how to better balance the cut and fill taken into account that lined drains are constructed and additional excavation takes place due to organic matter in the soil.)
  - Selection of workers
  - Assess the quality and costs of the constructed works

7. Innovative technologies
- Summarise the former suggestions on possible innovative technologies which might be taken into account for future works. Have innovative technologies been used in Hanna Nassif Phase I or II?

8. Community maintenance
- The consultant should discuss and propose suitable operation and maintenance procedures for the created assets (this should include references to how to prepare a maintenance plan and budget¹). The consultant will collect all data which enables him to update and finalise the existing Hanna Nassif maintenance manual (update and finalisation will take place under a separate contract).

9. Training programme
- Assess the technical training provided during Hanna Nassif II and the appropriateness of this training (beneficiaries, contractors, contracting agency, support agency, city commission). Recommend training courses/programmes for future projects

¹ Please note that a maintenance manual has been prepared (and partly translated in Swahili) in Hanna Nassif Phase I (Pal Saetrum and Eng. Kasure).
2 See for reference the Tagjman, de Veen, ILO guide on labour practices and policies
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000

10. Impact labour based, community managed works

- Assess the impact of the labour based community managed construction of works on the residents of Hanna Nassif, especially groups at risk such as unemployed youth and women.

- Assess the impact of labour based community managed works on the environment.

- Assess which labour policies and practices have been followed and which have been neglected. What is the recommendation for future community works in this respect?

- What has been the impact of the contracts (private and community) on community organisation and negotiation capacities?
ANNEX 2

ITINERARY
16th July 2000  Travel Nairobi - Dar es Salaam (Wilma van Esch)

17th July 2000  Travel Faro - Amsterdam (John Clifton)

18th July 2000  Travel Amsterdam - Dar es Salaam (John Clifton)

19th July 2000  Briefing ILO/ASIST
                Site visit Hanna Nassif
                Meeting TST

20th July 2000  Site visit Hanna Nassif
                Inspection of works
                Examination of documents
                Data collection

21st July 2000  Visit Hanna Nassif
                Data collection
                Examination of documents

22nd July 2000  Processing of data
                Presentation on issues and training needs for Hanna Nassif water supply system

23rd July 2000  Analysis of data

24th July 2000  Briefing ILO Director
                Examination of documents
                Analysis of data
                Preparation of report outline

25th July 2000  Meeting NIGP
                Examination of documents
                Presentation on Hanna Nassif water supply system
                Dinner - TST team

26th July 2000  Examination of documents
                Clarification of details and analysis (with Site Engineer)

27th July 2000  Meeting COWI(T) Ltd
                Meeting Danida
                Preparation of synopsis

28th July 2000  Visit Kinondoni Municipality
                Clarification of details and analysis (with Site Engineer)
                Hanna Nassif - inspection of all works undertaken and planned in Phase II

29th July 2000  Travel Dar es Salaam - Nairobi (Wilma van Esch)
                Report writing

30th July 2000  Report writing

31st July 2000  Meeting KMC Management Committee
                Report writing
1st August 2000  Meeting UCLAS  
               Report writing  
2nd August 2000  Report writing  
3rd August 2000  Wrap up meeting TST  
               Report writing  
               Travel Dar es Salaam - Nairobi - (Amsterdam) (John Clifton)  
4th August 2000  Travel Amsterdam - Faro (John Clifton)
ANNEX 3

PRINCIPAL CONTACTS
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000

UCLAS
Dr. Kombe Project Leader
Dr.G.M.S. Mbyopyo Project Manager
Dr. Manoris Meshak Consultant Animator
Alfred Mwenisongole Animator
S.A.Sheuya Lecturer (CBOs & Infrastructure Specialist)
Mpayo Kasure Engineer (DCC/ILO)
Mengisenyi Kaseva Engineer
Tadei Mdee Environmental Engineer

Hanna Nassif Community Development Association
Nestry Joseph Chairman CDA

ILO
Ali Ibrahim Director

ILO/ASIST
Wilma van Esch Technical Advisor
John van Rijn Programme Officer (Labour Based Infrastructure)
Aryan During Programme Officer (Employment Intensive Programme)

COWI (T) Ltd
Henrik Theilgaard Managing Director
Mrs. Rafia Nshama Civil Engineer
Innocent Macha Ass.Head of Transport Department

SERVICEPLAN
Beda Lymo Director

National Income Generation Programme
K.W.Salewi Chief Engineer

Danida
Soren Wium-Andersen Counsellor (Development)

KMC
Municipal Management Committee
ANNEX 4

LIST OF DOCUMENTS REVIEWED
Site Records: Community Contracts; UCLAS/CDA

Quarterly Reports Nos 2 -12, Community Based Settlement Upgrading, Hanna Nassif, Kinondoni District, Dar es Salaam; UCLAS, NIGP, June 1997 - March 2000

Code of Procedure for Tendering for Civil and Building Works in Tanzania (First Edition); National Construction Council, 1992

Agreement and Schedule of Conditions of Building Contract; National Construction Council, 1998


Contract for Consulting Services; Community Based Settlements Upgrading for Hanna Nasif Settlements, Kinondoni District, Dar es Salaam, University College of Lands and Architectural Studies, UCLAS/COWI Consulting Engineers, December 1999


Contract Documents for Packages 1 & 15; Community Based Settlements Upgrading for Hanna Nasif Settlements, Kinondoni District, Dar es Salaam, University College of Lands and Architectural Studies, COWI Consulting Engineers, August 1999

Evaluation Report on Tenders for Packages 1 & 15; Community Based Settlements Upgrading for Hanna Nasif Settlements, Kinondoni District, Dar es Salaam, University College of Lands and Architectural Studies, COWI Consulting Engineers, August 1999

Tender Documents Volume I: Instructions to Tenderers, Conditions of Contract, Form of Tender, Appendix to Form of Tender, Bill of Quantities, Schedule Nos. 1-6; Community Based Settlements Upgrading for Hanna Nasif Settlements, Kinondoni District, Dar es Salaam, University College of Lands and Architectural Studies, COWI Consulting Engineers, May 1999


Tender Documents Volume III: Drawings; Community Based Settlements Upgrading for Hanna Nasif Settlements, Kirondoni District, Dar es Salaam, University College of Lands and Architectural Studies, COWI Consulting Engineers, July 1998 & March 1999

Tender Documents Volume IV: Background to Design; Community Based Settlements Upgrading for Hanna Nasif Settlements, Kirondoni District, Dar es Salaam, University College of Lands and Architectural Studies, COWI Consulting Engineers, July 1998

Tender Documents Volume V: Engineers Cost Estimates; Community Based Settlements Upgrading for Hanna Nasif Settlements, Kirondoni District, Dar es Salaam, University College of Lands and Architectural Studies, COWI Consulting Engineers, July 1998
Tender Documents for Major Works Volume 1A: Instructions to Tenderers, Conditions of Contract, Form of Tender, Appendix to Form of Tender, Bill of Quantities, Schedule Nos. 1-6; Community Based Settlements Upgrading for Hanna Nasif Settlements, Kinondoni District, Dar es Salaam, University College of Lands and Architectural Studies, COWI Consulting Engineers, March 1999

Draft Community Contract & Tender Documents for Minor Works Volume 1B: Bill of Quantities; Community Based Settlements Upgrading for Hanna Nasif Settlements, Kinondoni District, Dar es Salaam, University College of Lands and Architectural Studies, COWI Consulting Engineers, March 1999

Report on Ford Foundation Grant Funds, No. 930-1248-1; August 1999

Baseline Study: Hanna Nassif Community Based Infrastructure Upgrading Project Phase II; UCLAS, ILO, 1998

Community Based Contracting: Review of Stakeholder Experience; Samantha da Silva, IBRD, January 2000

Guidelines for Simplified Procurement and Disbursement for Community Based Investments; World Bank

Draft Report - Community Partnered Procurement - Community Contracting; Hanna Nassif Urban Infrastructure Project, Dar es Salaam, Dr Muhammed Sohail Khan, Urban Infrastructure Unit, WEDC, Loughborough University, October 1998


Support to Project Team: Procedures for Documentation for Tendering of Works, Supervision of Works, Workplan for Construction Activities for the Use of Labour Based Technology; Hanna Nassif Urban Upgrading Project, Dar es Salaam, URT/97/032/A09, John Clifton, April 1999

Support to the Project in Reviewing Tendering Procedures, Documentation and Performance of Community and Private Contracts, Supervision of the Works, Efficient Use of Labour Based Technology and Update of the Plan for Construction Activities; Hanna Nassif Urban Upgrading Project, Dar es Salaam, URT/97/032/A09, John Clifton, October 1999


Employment Intensive Infrastructure Programmes: Capacity Building for Contracting in the Construction Sector; Peter Benthall, Andreas Beusch, Jan de Veen, ILO, April 1999


Community Contracts in Urban Infrastructure Works: Practical Lessons from Experience; Jane Tournee, Wilma van Esch, ILO/Asist, June 2000
Consultancy on Contracting and Labour Based Works
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09
July/August 2000

Contracting, Negotiation and Organisation in Development Programmes and Projects: Current Practice at the Community Level - An Introductory Guide; Peter Oakley, May 2000

Organisation, Contracting and Negotiation in Development Programmes and Projects: A Study of Current Practice at the Community Level; Peter Oakley, November 1999

Training for Labour-Based and Community-Managed Upgrading of Urban Low-Income Settlements; ILO/Asist, January 1999


Report on the Proceedings of the Hanna Nassif Community Based Upgrading Project Phase II; 1st Year Mini-Review Workshop 25.05.98; UCLAS

Cost Effectiveness Study: Hanna Nassif Community Based Upgrading Project Phase II: Construction Stage - Draft Version; John van Rijn, June 2000

Report: Foremen’s Course: Community Managed and Labour Based Upgrading of an Urban Low Income Settlement, Hanna Nassif, Dar es Salaam; Peter Kega, James Manyara, Jan Fransen, KTC, ILO/ASIST
ANNEX 5

WORK PLAN
### Programme of Works - Planned and Actual Work Periods

<table>
<thead>
<tr>
<th>Section</th>
<th>Work Package</th>
<th>1999</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>APR</td>
<td>MAY</td>
</tr>
<tr>
<td><strong>Community Contracts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outfall No.5</td>
<td></td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td><strong>Road No. 3</strong></td>
<td>DRAINAGE</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td><strong>Water Supply</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Road Works</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Road No. 2B</strong></td>
<td>DRAINAGE</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td><strong>Water Supply</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Road Works</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Drain No. 1</strong></td>
<td></td>
<td>11</td>
<td></td>
</tr>
<tr>
<td><strong>Water Supply</strong></td>
<td>NODES 11 - 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NODES 10 - 6'</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Kiosks x 5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connection Lines to Kiosks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Private Contracts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Package 1</td>
<td>Outfall No.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Package 4 &amp; 5</td>
<td>Kiosks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Package 6</td>
<td>Water Supply 1 - 2'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Package 15</td>
<td>Road No.4 (Road works, drainage, water supply)</td>
<td>Luk</td>
<td>Luk</td>
</tr>
</tbody>
</table>
NOTES

1. Community contracts are identified by contract n°.
2. Private contractors are identified by the name of the contractor ie Sala, Lukwati, Dawasa.
3. Pipe laying for water supply was originally split into 4 packages; all (sections 2-9, 9-8, 8-7, 9-10, 8-10, 11-3, 10-6’)were undertaken in community contracts 15 and 16.
4. Contract periods have been rounded to the nearest month.
5. Only kiosks DP5 and DP2 are complete; DP7 is partially complete; community contracts 20 and 21. It is not known when it will be possible to complete remaining kiosks due to funding problems.
6. Package 6 (water supply connection on Kawawa Road - section 1-2’) is now expected to start in August 2000.
7. Roadworks (Roads 3 and 2B) will not now be undertaken due to budget cuts.
ANNEX 6

TRAINING
### HANNA NASSIF TRAINEES - SKILLED AND SEMI-SKILLED

#### CURRENT EMPLOYMENT SITUATION

<table>
<thead>
<tr>
<th>NAME</th>
<th>SEX</th>
<th>SKILLED</th>
<th>SEMI-SKILLED</th>
<th>SKILLS</th>
<th>EMPLOYMENT OUTSIDE HANNA NASSIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juma Shomari</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Setting out, road works, drainage, plumber, water supply, bar fixer, gabions</td>
<td>Full time with private contractor</td>
</tr>
<tr>
<td>Melania Paul</td>
<td>F</td>
<td>*</td>
<td></td>
<td>Mason, drainage, gabions</td>
<td>6 month contract with private contractor</td>
</tr>
<tr>
<td>Hadija Chonde</td>
<td>F</td>
<td></td>
<td></td>
<td>Mason, drainage, outfalls, gabions</td>
<td></td>
</tr>
<tr>
<td>Shabaan Daudi</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Plumber, water supply, form work, bar fixing, concrete</td>
<td>6 month contract with private contractor</td>
</tr>
<tr>
<td>Sudi Mfaume</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Concrete</td>
<td>Yes but now finished</td>
</tr>
<tr>
<td>Mpaji Mrisho</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Foreman, road works, drainage</td>
<td></td>
</tr>
<tr>
<td>Sabiam Omari</td>
<td>F</td>
<td>*</td>
<td></td>
<td>Mason</td>
<td></td>
</tr>
<tr>
<td>Tamim Tuwa</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Carpenter, mason, bar fixing, gabions</td>
<td>Self employed</td>
</tr>
<tr>
<td>Uhadi Mohamed</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Form work</td>
<td>Yes but now finished</td>
</tr>
<tr>
<td>Mohamed Said</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Concrete</td>
<td>Full time with private contractor o/s Dar es Salaam</td>
</tr>
<tr>
<td>Issa Kirumbi</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Plumber, formwork</td>
<td>One year contract with private contractor</td>
</tr>
<tr>
<td>Charles Kanoga</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Mason</td>
<td>Full time employment with private contractor (also assistant who is not listed here)</td>
</tr>
<tr>
<td>Nestory Joseph</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Drainage, road works</td>
<td>Chairman CDA</td>
</tr>
<tr>
<td>Ally Mrisho</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Drainage, road works</td>
<td>Full time employment with DAWASA</td>
</tr>
<tr>
<td>Said Abdallah</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Bar fixer</td>
<td>Full time employment with Konoike (private contractor)</td>
</tr>
<tr>
<td>Heri Mboga</td>
<td>M</td>
<td>*</td>
<td></td>
<td>Bar fixer</td>
<td>Full time employment with private contractor</td>
</tr>
<tr>
<td>Salima Omary</td>
<td>F</td>
<td>*</td>
<td></td>
<td>Fore(lady)</td>
<td>Full time employment with private contractor</td>
</tr>
</tbody>
</table>
### TRAINING CARRIED OUT UNDER PHASE II

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>TOPICS</th>
<th>OBJECTIVES OF TRAINING</th>
<th>NOS TRAINED</th>
<th>TARGET GROUP</th>
<th>TRAINING METHODOLOGY</th>
<th>TIMING</th>
<th>LENGTH OF MODULE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Men</td>
<td>Wo</td>
<td>All</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>-</td>
<td>1</td>
<td></td>
<td>1-8.03.2000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Future planning and preparation of CDA budget</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>CBO members</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Settlement upgrading regulations for CDA committees</td>
<td>7</td>
<td>16</td>
<td>23</td>
<td>CDA</td>
<td>Workshop</td>
</tr>
<tr>
<td>Communities &amp; CDA</td>
<td>Community participation in collective decision making and proceedings</td>
<td>Development of community leadership skills</td>
<td>16</td>
<td>9</td>
<td>25</td>
<td>CDA members</td>
<td>25.03.2000</td>
</tr>
<tr>
<td></td>
<td>Formation of committees and definition of roles</td>
<td>Evaluation of business activity performance</td>
<td>5</td>
<td>40</td>
<td>45</td>
<td>Women Unit 1</td>
<td>Workshop</td>
</tr>
<tr>
<td></td>
<td>Credit scheme</td>
<td>Regulation and remissions</td>
<td>35</td>
<td>120</td>
<td>155</td>
<td>Participants in credit scheme</td>
<td>Workshop</td>
</tr>
<tr>
<td></td>
<td>CDA consultation</td>
<td>Clarification and explanation</td>
<td>277</td>
<td>229</td>
<td>506</td>
<td>Hanna Nassif residents</td>
<td>October-December 1997</td>
</tr>
<tr>
<td></td>
<td>Credit scheme</td>
<td>Registration and remissions</td>
<td>7</td>
<td>8</td>
<td>15</td>
<td>Participants</td>
<td>Workshop</td>
</tr>
<tr>
<td></td>
<td>Financial management and procedures</td>
<td>Planning and expenditure of funds; control of budget lines</td>
<td>5</td>
<td>6</td>
<td>11</td>
<td>CDA leaders</td>
<td>Seminar</td>
</tr>
<tr>
<td></td>
<td>Development of CBOs</td>
<td></td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>CBOs</td>
<td>Workshop (at CBE)</td>
</tr>
<tr>
<td></td>
<td>CBOs</td>
<td></td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>Workshop (CIP organised at TDF)</td>
<td>6.08.99</td>
</tr>
<tr>
<td></td>
<td>Project management &amp; financial control systems</td>
<td></td>
<td>3</td>
<td>12</td>
<td>15</td>
<td>Community leaders Ward officers Project personnel Mess media</td>
<td></td>
</tr>
<tr>
<td>CIVIC FUNCTIONS &amp; GENERAL</td>
<td>Briefing</td>
<td>Familiarisation of community leaders because CDA activities had been suspended and Mtaa and ward leaders were mobilised to take over</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td>1 day</td>
</tr>
<tr>
<td>ISSUE</td>
<td>TOPICS</td>
<td>OBJECTIVES OF TRAINING</td>
<td>NOS TRAINED</td>
<td>TARGET GROUP</td>
<td>TRAINING METHODOLOGY</td>
<td>TIMING</td>
<td>LENGTH OF MODULE</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>------------------------</td>
<td>-------------</td>
<td>--------------</td>
<td>----------------------</td>
<td>--------</td>
<td>------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Men</td>
<td>Wo</td>
<td>All</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CDA</td>
<td>UCLAS</td>
<td>DCC</td>
<td>COWI(T)</td>
<td>NIGP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>21</td>
<td>9</td>
<td>30</td>
<td>Hanna Nassif residents</td>
<td>11.09.99</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>29</td>
<td>11</td>
<td>40</td>
<td>CDA executive team Functional heads of Ward Executive Office</td>
<td>1 day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>April-June 1998</td>
</tr>
<tr>
<td>SOLID WASTE &amp; ENVIRONMENT</td>
<td>Management of solid waste and mobilisation of funds</td>
<td>Sensitisation of Hanna Nassif residents</td>
<td>30</td>
<td>59</td>
<td>89</td>
<td>Residents of Hanna Nassif</td>
<td>Neighbourhood workshops</td>
</tr>
<tr>
<td></td>
<td>Participatory and partnership issues for addressing local environmental issues</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Community mobilisation in solid waste management</td>
<td>4</td>
<td>11</td>
<td>15</td>
<td>-</td>
<td>Seminar</td>
<td>April-June 1998</td>
</tr>
<tr>
<td>ADMINISTRATION &amp; MANAGEMENT</td>
<td>Word processing (basic)</td>
<td>Acquisition of basic computer skills</td>
<td>-</td>
<td>3</td>
<td>3</td>
<td>CDA staff members</td>
<td>13-25.03.2000</td>
</tr>
<tr>
<td></td>
<td>Conflict management</td>
<td>-</td>
<td>7</td>
<td>28</td>
<td>Hanna Nassif residents and CDA members</td>
<td>30.08.99</td>
<td>1 day</td>
</tr>
<tr>
<td>CONSTRUCTION WORKS &amp;</td>
<td>LB techniques</td>
<td>Familiarisation with LB techniques</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>Environ Engineer</td>
<td>On site training</td>
</tr>
</tbody>
</table>
## Consultancy on Contracting and Labour Based Works

**Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09**

**July/August 2000**

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>TOPICS</th>
<th>OBJECTIVES OF TRAINING</th>
<th>NOS TRAINED</th>
<th>TARGET GROUP</th>
<th>TRAINING METHODOLOGY</th>
<th>TIMING</th>
<th>LENGTH OF MODULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAINTENANCE</td>
<td>Construction of storm water drainage channels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction methodology - drains and roads</td>
<td>Construction techniques; community contract preparation including cost estimation for labour and materials</td>
<td>27</td>
<td>21</td>
<td>48</td>
<td>CDA members and Construct Committee</td>
<td>Seminar</td>
</tr>
<tr>
<td></td>
<td>Maintenance Manual</td>
<td>Maintenance of drainage system, KIMWODA contract, familiarisation with maintenance manual and COWI(T)Ltd documents</td>
<td>29</td>
<td>6</td>
<td>35</td>
<td>CDA members Hanna Nassif community</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Training needs for engineers and technicians on LB upgrading programmes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9-10.11.98</td>
</tr>
<tr>
<td></td>
<td>Construction of storm water drainage channels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gabion construction</td>
<td>Impartation of skills for sewing and installation of Reno mattresses and gabion boxes</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td>Hanna Nassif workers with private contractors (who will also form core maint team)</td>
<td>On site training</td>
</tr>
<tr>
<td></td>
<td>Foremen’s course</td>
<td>LB technology in low income settlements, procurement of materials, tools, equipment, recruitment of labour, working conditions, management of LB site, Health &amp; Safety, task rates, programme and reporting, cost estimation, contract conditions, design, BOQ, quality control laying of water supply pipes road construction, gabions, concrete</td>
<td>6</td>
<td>-</td>
<td>6</td>
<td>Foremen from private contractors Hanna Nassif personnel</td>
<td>Classroom and on site training (undertaken by KTC in collaboration with ILO/ASIST &amp; UCLAS)</td>
</tr>
</tbody>
</table>

**NOTE** Sources of information: Quarterly Reports, site records, Report on Proceedings of Hanna Nassif Community Based Infrastructure Upgrading Project - Phase II - 1st Year Mini-Review Workshop 25.05.98, Short Report by ME Kaseva on International Senior Technicians Course in LB Road Construction and Maintenance - KTC 25.05-11.07.98, Report on Foremen’s Course 11-16.10.99.
### TRAINING OUTLINE FOR HANNA NASSIF PROJECT PARTNERS

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>TOPICS</th>
<th>OBJECTIVES OF TRAINING</th>
<th>TARGET GROUP</th>
<th>TRAINING METHODOLOGY</th>
<th>TIMING</th>
<th>LENGTH OF MODULE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTRACT MANAGEMENT</td>
<td>Purpose of contracts Forms of contract Responsibilities and obligations Interpretation Application Tendering Procurement Credit Conflict resolution Tax &amp; VAT Accounting</td>
<td>To provide an overview of the purposes and use of civil engineering contracts including correct interpretation of the obligations and remedies available under conventional forms of contract leading to other practical aspects of contract management</td>
<td>UCLAS CDA</td>
<td>Classroom</td>
<td>As soon as possible within period of phasing out of TA support to CDA (assumed Sept 2000 to March 2001)</td>
<td>1 week</td>
</tr>
<tr>
<td>COMMUNITY CONTRACTS (&amp;SHADOW TENDERS)</td>
<td>Purpose of contracts Forms of contract Responsibilities and obligations Interpretation Application</td>
<td>To give an understanding of community contracts and agreements, their purpose as a means of empowerment of the community and their possibilities and limitations as regards commercial competitiveness.</td>
<td>CDA</td>
<td>Classroom</td>
<td>As soon as possible within period of phasing out of TA support to CDA (assumed Sept 2000 to March 2001)</td>
<td>3 days</td>
</tr>
<tr>
<td>CIVIC FUNCTIONS</td>
<td>Laws and regulations covering public bodies Bylaws Committee structures and procedures Conflict resolution Accountability Control of public funds Revenue collection Animation of community Information dissemination VAT Political structures Local government structures</td>
<td>To introduce CDA to functions of civic function, responsibility and management of public assets and infrastructure</td>
<td>CDA Zone (neighbourhood) Committees MDC</td>
<td>Classroom</td>
<td>Late 2000 after elections for CDA but depends also on developments concerning solid waste management litigation and revenue sources for maintenance 1st priority</td>
<td>1 week (Suggest modules at [say] monthly intervals eg Dec 2000, Jan, Feb 2001)</td>
</tr>
<tr>
<td>ROUTINE MAINTENANCE</td>
<td>Maintenance planning &amp; workplan Infrastructure inventory Condition survey Tasks &amp; techniques</td>
<td>To introduce the community to routine maintenance of ‘their’ infrastructure created under Phases I &amp; II. Inculcation of ‘maintenance culture’!</td>
<td>CDA</td>
<td>Classroom/on site</td>
<td>Late 2000 after elections for CDA (maintenance manual should be ready, at least in</td>
<td>1 week</td>
</tr>
</tbody>
</table>
Consultancy on Contracting and Labour Based Works  
Hanna Nassif Urban Upgrading Project Phase II URT/97/032/A09  
July/August 2000

<table>
<thead>
<tr>
<th>ISSUE</th>
<th>TOPICS</th>
<th>OBJECTIVES OF TRAINING</th>
<th>TARGET GROUP</th>
<th>TRAINING METHODOLOGY</th>
<th>TIMING</th>
<th>LENGTH OF MODULE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Budget</td>
<td>Cost control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resource requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WATER RETICULATION SYSTEMS</td>
<td>Familiarisation with water supply system</td>
<td>To introduce the community to operation and maintenance of the water reticulation system created under Phase II.</td>
<td>CDA</td>
<td>Classroom/on site</td>
<td>1st priority</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Theory and practice of water supply networks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Financial management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Business planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Management systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTES

1. All of these modules are shorter than would normally be the case for a full examination of these topics due to the limited project period remaining, even including the assumed 6 month period for phasing out of TA support to CDA.

2. It is suggested that NCC be contacted concerning extension of this training outline leading to possible registration of CDA with CRB.

3. The remaining project period is very short and it is thus suggested that training on Water Supply, Civic Functions and Maintenance should be 1st priority.

4. As a 2nd priority training in Contract Management and Community Contracts may be desirable, especially if CDA goes ahead with CRB registration, with an eye to continuity of community involvement in construction contracts after the project life.
ANNEX 7

PREQUALIFICATION AND SELECTION OF CONTRACTORS
HANNA NASSIF UPGRADED PROJECT
DAR ES SALAAM, TANZANIA
URT/97/032/AO9

PREQUALIFICATION OF CONTRACTORS

INVITATION TO PREQUALIFY

In connection with the Hanna Nassif Upgrading Project Phase II contractors registered with the Contractors Registration Board under Civil Works Class VII (and VI) are hereby invited to be prequalified for tendering.

To implement this project funded by UNDP and Ford Foundation, the University College of Lands and Architecture as executing agency for NIGP, in association with the residents of Hanna Nassif unplanned settlement intend to carry out the following works by labour based methods:

- Gravel roads and side drains (1790m)
- Separate main drains (475m)
- 3 outfalls using gabions (400m)
- Construction and connection of 10 public water kiosks
- Installation and connection of UPVC water supply pipes - 200mm dia (858m)
  - 160mm dia (1788m)
  - 110mm dia (552m)
  - 90mm dia (198m)

The works have been designed by Cowi Consulting Engineers and Planners.

The aims of the project include encouragement of the development of small local contractors and thus some of the works will be packaged into contracts which should be within the capacity of Class VII (and VI) Civil Works Contractors. All contractors who are interested in tendering for this work are therefore to register with UCLAS.

The required forms, supplied free of charge to interested contractors can be obtained from:

The Office of the Principal
UCLAS
PO Box 35176
Dar es Salaam

Deadline for return of prequalification data: 31.12.98
HANNA NASSIF UPGRADING PROJECT
DAR ES SALAAM, TANZANIA
URT/97/032/A09

PREQUALIFICATION OF CONTRACTORS

INVITATION TO PREQUALIFY

LIST OF FORMS

1. General Information
2. Organisation
3. Schedule of Professional Staff
4. Schedule of Plant and Equipment
5. Schedule of Similar Works
6. Financial Resources
1. **General Information on the Enterprise**

1.1 Registered Name of Company:

1.2 Full Address of Company:

Tel:    Fax:    e-mail:

1.3 Founded in:

1.4 Listed at the Registrar of Companies at:

Business Licence:    Dated:

1.5 Legal Status of Company:

1.6 Ownership in percentages:

Shareholders:

Private Sector:

1.7 Management:

1.8 Has the Company ever changed its name?

If so, what was the previous name?

1.9 What is the Class of Registration with the Contractors Registration Board:

Registration No:    Date of Registration:

1.10 What are the main areas of work of the Company?

1.11 In which geographical area does the Company principally operate?
2. **Organisation of the Company**

Give a brief description of the Company, the various parts of the enterprise and fields of expertise including an organizational chart. Use additional pages if necessary.
3. **Schedule of Professional Staff**

Specify the professional experience and qualifications of the senior staff members of the enterprise including whether any persons have received training in labour based techniques (where, when, with whom). Use additional pages if necessary.

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION</th>
<th>YEARS WITH THE COMPANY</th>
<th>QUALIFICATIONS &amp; TRAINING</th>
<th>EXPERIENCE</th>
</tr>
</thead>
</table>
4. **Schedule of Plant and Equipment**

List the main items of equipment owned by the Company. Use additional pages if necessary.

<table>
<thead>
<tr>
<th>TYPE OF EQUIPMENT</th>
<th>REG NO OR NAME</th>
<th>TYPE OR MODEL</th>
<th>AGE &amp; CONDITION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. **Schedule of Similar Works**

List the works carried out since the company was established as main contractor or subcontractor. Include works in progress. Indicate any contracts which were not completed and explain why completion was not possible. Use additional pages if necessary.

<table>
<thead>
<tr>
<th>CLIENT</th>
<th>CONTRACT NAME</th>
<th>BRIEF DESCRIPTION OF WORKS</th>
<th>CONTRACT SUM</th>
<th>CONTRACT PERIOD</th>
</tr>
</thead>
</table>
6. **Financial Resources**

6.1 **Assets and Liabilities**

A. **Assets**

1. **Cash**
   a) Cash in hand ........................................
   b) Cash deposits ......................................
   c) Other cash ...........................................
   
   Total Cash ............................................

2. Deposits for tenders and guarantees ..........................

3. Sums receivable on completed contracts ..................

4. Sums earned and invoiced on uncompleted contracts ..........

5. Other sums receivable ..................................

**Net Assets** ..................................................

B. **Liabilities**

6. Accounts payable ........................................

7. Other liabilities ........................................

**Current Liabilities** .........................................

6.2 **Balance Sheet**

Enclose a copy of the company balance sheet

6.3 **Capital**

What capital is held by the company? ..........................

6.4 **Banking References**

a) Which bank or banks do you use for conduction business?

b) What guarantees, sureties and insurances can be obtained by the company for conducting business?

c) Does the company have any current bank loans?

d) Can the company obtain a bank loan if considered necessary? What conditions would be imposed and what security, if any, would be required
ANNEX 8

CONDITIONS OF CONTRACT – INDICATIVE SHORTER FORMAT

This proposed contract is based upon a form of contract which has been in use for some time in some regions of Tanzania for routine road maintenance works (Ministry of Works) but with some modifications indicated by the experiences of the Labour Based Contractor Development Programme in Zimbabwe plus inclusion of specific clauses concerning labour policies and practices as recommended by ILO for Employment Intensive Infrastructure Programmes).
HANNA NASSIF

URBAN UPGRAADING PROJECT

DAR ES SALAAM, TANZANIA

URT/97/032/A09

CONTRACT DOCUMENT

PACKAGE ....................

CONTRACT NO ...............
TABLE OF CONTENTS

SECTION 1  INSTRUCTIONS TO TENDERERS      *
SECTION 2  GENERAL DESCRIPTION OF WORKS      *
SECTION 3  CONDITIONS OF CONTRACT
SECTION 4  FORM OF TENDER      *
SECTION 5  APPENDIX TO FORM OF TENDER      *
SECTION 6  LIST OF TENDER DRAWINGS      *
SECTION 7  FORM OF AGREEMENT      *
SECTION 8  FORM OF PERFORMANCE GUARANTEE      *
SECTION 9  FORM OF INSURANCE COVER      *
SECTION 10  BILL OF QUANTITIES      *
SECTION 11  SCHEDULE NOS 1 – 6      *
SECTION 12  TECHNICAL SPECIFICATIONS      *
SECTION 13  DRAWINGS      *

Note: All section marked thus (*) are as per the COWI documents and designs with amendments as set out in Annex 8 or in the body of this report.
CONDITIONS OF CONTRACT

GENERAL

Preamble

Attention is directed to the Specifications and the drawings and these documents are to be read in conjunction with the Bill of Quantities. Some work packages will be undertaken by Contractors, others by the community. For this reason the items indicated in the Bill of Quantities have been split between cost of materials and execution of the work ie the cost of labour can be seen separately from the cost of materials.

Clause 1: Contract Documents

The Conditions of Contract and the Technical Specification form an integral part of the Contract Documents and they are to be read in conjunction with all other documents forming the contract. In cases where there appears to be a conflict the priority of the documents shall be as stated in Clause 8 of these Conditions of Contract.

Clause 2: Definitions

In the Conditions of Contract and the Technical Specifications the following expressions shall have the meanings assigned to them hereby:

**Engineer** means: UCLAS, University College of Lands and Architectural Studies, PO Box 35176, Dar es Salaam or other Engineer appointed from time to time by the Employer and notified in writing to the contractor to act as Engineer for the purposes of the Contract in place of said.

**Contractor** means: a Contractor registered with the Contractors Registration Board as Civil Works Contractor Class VI (*and VI*) or Specialist Labour Based Maintenance Contractor.

**Works** means: the works to be executed in accordance with this contract.

**Site** means: the lands within the limits of clearing defined in the drawings, the lands required for excavation of open drains and any other lands provided by the Engineer for the purpose of extraction of materials to be used in the Works.

**Labour Based Methods** means: work methods in which labour and light equipment are used in place of heavy plant to execute the works to achieve as great a component of employment generation as is technically feasible while achieving the specified standards of construction.
EMPLOYERS REPRESENTATIVE

Clause 3: Appointment

The Employer has appointed the Engineer to assist the Employer in the supervision of the works. He shall notify the Contractor the names, duties and scope of authority of any other person or persons appointed from time to time by the Employer.

Clause 4: Instructions

Instructions given by the Employer or his representative shall be in writing. If for any reason such information is given orally the Contractor shall comply with such instruction. Within a time of four days oral instructions shall be confirmed in writing.

Clause 5: Urgent Works

If after inspection of the works the Employer or his representative instructs certain works to be urgent to be completed within a given period the Contractor shall comply with such an instruction.

CONTRACT DOCUMENTS

Clause 6: Language

All notices, instructions, correspondence or any other written documentation concerning the contract shall be in Swahili or English as the parties agree.

Clause 7: Law

The contract, its meaning and interpretation and the relation between the parties shall be governed by the laws of the United Republic of Tanzania.

Clause 8: Priority of Contract Documents

The several documents forming the contract are to be taken as mutually explanatory of one another but in case of discrepancy the priority of documents shall be as follows:

1. Form of Agreement
2. Conditions of Contract
3. Technical Specifications
4. Drawings
5. Any other document forming part of the contract
General Obligations

Clause 9: Execution of Works

The Contractor shall supply all labour, tools, plant, transport, materials and whatever is required for the completion of the works and shall carry out the works in accordance with the drawings and the requirements of the contract documents and such additional instructions as may be issued from time to time. The Contractor shall notify the Employer in writing prior to bringing any plant to the site.

Clause 10: Adverse Physical Conditions

If during the execution of the works the Contractor encounters physical conditions, other than climatic conditions which were not foreseeable by an experienced Contractor, the Employer shall determine any extension of time to which the Contractor is entitled.

Clause 11: Sub-contracts

The Contractor shall not sub-contract the whole or part of the work under this contract without prior written approval of the Employer. Such approval shall not release the Contractor from any liability or obligation under the contract and the Contractor shall be responsible for default or neglect of any subcontractor.

Clause 12: Rejected Works

Works not in accordance with the requirements of the contract shall be rejected. On instruction the Contractor will repair or correct or re-execute such rejected work to the full satisfaction of the Employer.

Clause 13: Superintendance

The contractor shall supervise the work with diligence and comply with the standard of performance required by the Employer so as to meet the specific requirements of quality, quantity and time frame. If at any time laxity or serious departures from set norms are observed by the Employer suitable action shall be taken by the Contractor to correct the situation.

Labour based work requires a high input of supervisory and administrative personnel with relevant training and experience. The Contractor is therefore required to provide a sufficient number of competent supervisory personnel in his work force to ensure proper supervision and control. All supervisory staff must be approved by the Employer.

Clause 14: Inspection

The Employer or his authorised representative has the right to inspect the works and the Contractor shall provide reasonable assistance for the same as and when required by the Employer.
Clause 15: Engagement of Staff and Labour

In view of the large labour force involved in the labour based works the Contractor shall observe the following:

1. The Contractor shall employ casual labour on a daily taskwork basis wherever feasible. The size of the daily task shall be measured by the average productivity of a labourer during a normal working day of 8 hours and will vary with terrain, type of work and weather conditions. Tasks should generally be set to be achievable in 70% of the working day. The Contractor must always ensure that task rates are fair and are approved by the Engineer.

2. The Contractor shall pay rates of wages and observe hours and conditions of employment which are not less favourable than the general level of wages, hours and conditions observed by other employers whose general circumstances in the industry in which the Contractor is engaged, are similar.

3. Where the absence of established rates of wages, hours and conditions of employment prevent the Contractor observing rates of wages, hours and conditions of employment ascertained under b) above, the Contractor shall be guided by written advice from the National Construction Council.

4. The Contractor shall provide equal employment opportunities for both men and women workers.

5. The Contractor must observe national legislation for the minimum and maximum working age. The Contractor shall under no circumstances use any form of forced labour.

6. The Contractor shall recognise the freedom of his employees to be members of trade unions.

7. The Contractor shall maintain adequate records of the time worked and payment made to his employees to demonstrate compliance with the requirements of this clause.

8. The Contractor shall, if required by the Employer, furnish particulars of the rates of wages, hours and conditions of employment referred to above.

9. Any Contractor who fails to comply with the various legal instruments relating to ‘Regulation of Wages and Terms of Employment’ may be subject to termination of contract.

10. Should a claim be made to the Employer alleging the default of the Contractor in payment of wages, compensation or other entitlement under the various legal instruments relating to ‘Security of Employment’, ‘Workmens Compensation’, Accidents and Occupational Diseases’ and ‘Regulation of Wages and Terms of Employment’ of any worker employed on the Contract and if satisfactory proof is furnished, the Employer may, failing payment by the Contractor, pay the claim or entitlement out of any monies due or which may become due under the Contract.

Clause 16: Liabilities of the Contractor

The Contractor shall indemnify the Employer against all claims arising from loss or damage to third parties and against any liability arising from the various legal ordinances listed in Clause 15.
Clause 17: Force Majeure

In the event of any loss or damage happening from any operation of the forces of nature against which an experienced Contractor could not reasonably have expected the Contractor shall rectify the loss or damage and the Employer may determine an addition to the contract price and may consider an extension of the contract period.

Clause 18: Quality of Materials and Workmanship

All materials shall be of the respective kinds described in the contract and in accordance with the Employers instructions and subjected to such tests as the Employer may required. The Contractor shall provide, free of charge, all assistance for testing.

Clause 19: Clearance of Site

Upon completion of the works the Contractor shall remove from the site all equipment, tools, surplus materials, rubbish and temporary works and shall have the site clean and in a condition to the satisfaction of the Employer.

Clause 20: Safety and Protection of the Environment

The Contractor shall throughout the contract period have full regard for the safety of all persons entitled to be on the site and to keep the site in an orderly state to avoid any danger to such persons or to the general public.

The Contractor shall comply with all environmental legislation of the United Republic of Tanzania.

Clause 21: Commencement and Completion of the Work

The Contractor shall commence and complete the works within the time as given in the Form of Contract and associated contract documents or within an extended contract period if such extended time is granted by the Employer.

Clause 22: Variation

The Employer shall make any variation of the form, quantity or quality of the works and he shall have the authority to instruct the Contractor accordingly, provided that such variation shall be ordered by submission of a Variation Order to the Contractor. The Employer or his authorised representative shall determine the amount (if any) which in his opinion should be added to or deducted from the sum named in the tender in respect of any or additional work done or omitted by such order. The amount so determined shall be based upon the tender unit rates or in the case no unit rate is applicable such other rate as will be agreed upon between the Employer or his representative and the Contractor.
Clause 23: Work Programme

1. In the event of other contractors being engaged on the site at the same time (including execution of works carried out by the community) the Contractor should note that he must cooperate fully with them so that all works are carried out with the maximum harmony and minimum inconvenience to all parties.

2. When compiling his programme the Contractor shall make adequate allowance for any public holidays that may occur during the contract period. The contract period given in the Appendix to the Form of Tender and shown in the Contractors work programme shall therefore be deemed to include for all public holidays and no further allowance for holidays shall be permitted.

PAYMENT CERTIFICATES

Clause 24: Quantities

The quantities set out in the Bill of quantities are the estimated quantities for the works and they are not to be taken as the actual and correct quantities to be executed by the Contractor.

Attention is directed to the Specifications and the drawings and these documents are to be read in conjunction with the Bill of Quantities. Some work packages will be undertaken by Contractors, others by the community. For this reason the items indicated in the Bill of Quantities have been split between cost of materials and execution of the work ie the cost of labour can be seen separately from the cost of materials.

The Employer shall determine by measurement the value of the actual works and in accordance with the methods referred to in the Technical specification and Bill of Quantities he shall pay for the works in compliance with such measurements at the contractually stipulated unit costs.

In the case of foundation works or where the Employer considers it necessary, the Contractor shall, before the surface of any portion of the ground is disturbed or the work is put in hand, in conjunction with the Engineer, examine the site, plans and sections of the works and take such levels as may be considered necessary and shall agree as to the surface levels etc with the Engineer. Such agreement shall be recorded in writing and shall be signed by the Contractor and by the Engineer and shall form the basis for measurement of the permanent work.

Clause 25: Payment

Payments will be made to the Contractor in instalments and as agreed upon by the Employer and the Contractor and if the completed works are in compliance with the terms of the contract. With each instalment a retention as stated in the Form of Tender will be withheld. Such retention will be released at the end of the warranty period provided that all works and corrections and repairs if any have been executed to the satisfaction of the Employer.
The amount due to the Contractor under any Interim Certificate shall be paid by the Employer to the Contractor within 7 working days after the date the document which quantifies the jointly measured work has been accepted and signed by the Employer and the Contractor, or, in the case of the Final Certificate, within 14 days after the date such document has been accepted and approved by the Employer and the Contractor. If the Employer fails to make payment within the time stated the Employer shall pay to the Contractor interest at the rate stated in the contract documents.

Clause 26: **Liquidated Damages**

If the Contractor fails to complete the works within the time stated in the contract or within any time allowed for by the Employer, the Contractor shall pay to the Employer as Liquidated Damages a sum per day as stated in the Form of Tender calculated on the basis of a seven day week that the works remain uncompleted after the contractually stipulated date of completion.

Clause 27: **Period of Maintenance**

A maintenance period of any portion of the works shall, unless specified otherwise in the Appendix to the Form of Tender, not be less than twelve months from the completion of the whole of the portion. During this period the Contractor bears full responsibility for the execution of maintenance of the works and any repair or correction which might become necessary due to failures and incorrect performance of the contractor.

The Contractor shall not wait for the commencement of the period of maintenance to establish a maintenance regime as this may result in deterioration of the completed works. Regular labour based maintenance should be carried out on each completed section of work even before hand over.

**TERMINATION AND DISPUTE**

Clause 28: **Termination of Contract**

If the Contractor fails to commence the works within the specified time or gives reason to believe that the works may not be completed within the specified time or there are delays beyond the completion date or there is failure to comply with any one of the contract conditions or no attention is paid to instructions issued by the Employer or the Contractor becomes bankrupt, the Employer shall be entitled to terminate the contract and engage another Contractor to carry out the works.

Clause 29: **Payment if the Contract is Terminated**

If the contract shall be terminated, the Contractor shall be paid by the Employer, in so far as such amounts or items have not already been covered by payments on account made to the Contractor, for all work executed prior to the date of termination at the rates and prices provided in the Contract. Provided
always that against any payments due from the Employer under this clause the Employer shall be entitled to be credited with any outstanding balances due from the contractor for any advances in respect of plant and materials and any sum paid previously by the Employer to the Contractor in respect of the execution of the works.

Clause 30: Settlement of Dispute

If disputes arise they shall be settled by mutual discussion. If the discussions fail to produce an agreement either party has the option to appeal to the applicable statutes of the Tanzanian Arbitration Ordinance Cap.15. The decision of the arbitrator shall be final and binding on both parties.
ANNEX 9

OVERVIEW OF ESTIMATED AND ACTUAL WORKFORCE AND WORKING DAYS
ANNEX 10

OVERVIEW OF ESTIMATED AND ACTUAL CONSTRUCTION COSTS
ANNEX 11

INDICATIVE CHANGES TO CONVENTIONAL FORMS OF CONTRACT
The ‘conventional’ documentation as prepared by COWI(T)Ltd was subject to amendments of principle or substances (e.g., better coverage of conditions of work, task rater, accommodation for LB techniques) which are noted below plus many amendments of detail (which are not noted below). In all cases reference is made to chapters, sections, headings, titles etc. in the original COWI(T)Ltd documents Volumes I & II.

Volume I

1. Instructions to Tenderers
1.3 Conditions of Tender

The omission of a requirement for a bid bond is endorsed. Also, no advance payment (which is usually against some form of guarantee) is proposed. In the meeting with contractors this was stated to be acceptable to the contractors. More specifically:

1.3.2 Surety
Delete ‘…ten (10) per cent of the tender sum…’ replace with ‘…a sum specified in Appendix to the Form of Tender…’ The contractors suggested this percentage could be a matter for negotiation.

1.3.5 Registration
Delete ‘…Ministry of Works’ replace with ‘Contractors Registration Board as Civil Works Contractors Class VII (and VI) or Specialised Labour Based Maintenance Contractors’.

7. General Conditions of Contract

No comment beyond noting that these are based upon FIDIC Part I General Conditions.

Insert

PREAMBLE
It is understood by Employer, Engineer and Contractor that the contract shall be undertaken using labour based methods. Further, the contract shall be executed using principles of gender equality such that there will be equal participation of men and women.

Labour based methods involve gainful employment generation in creation of public infrastructure (in the case of this project – roads, drainage and water supply in Hanna Nassif) whilst ensuring that costs and quality are comparable with those achievable by other construction methods. Labour will thus be used in the most cost efficient manner, while equipment will be used only where necessary.

Casual labour will normally be engaged within the Hanna Nassif settlement. Recruitment will only be undertaken outside Hanna Nassif when it has been established to the satisfaction of the Hanna Nassif representational body that no persons with the required skills are available in Hanna Nassif.

DEFINITIONS AND INTERPRETATION

Sub-Clause 1 (1): Definitions

(b) Delete ‘…Private Local Labour Based Contractor’ insert ‘Contractors registered with the Contractors Registration Board as Civil Works Contractors Class VII (and VI) or Specialist Labour Based Maintenance Contractors’.

Insert clause
'Labour Based Methods’ means work methods in which labour and light equipment are used in place of heavy plant to execute the works to achieve as great a component of employment generation as is technically feasible while achieving the specified standards of construction’.

**GENERAL OBLIGATIONS**

**Insert**

**Clause 15: Superintendance**

Labour based work requires a high input of supervisory and administrative personnel with relevant training and experience. The Contractor is therefore required to provide a sufficient number of competent supervisory personnel in his work force to ensure proper supervision and control. All supervisory staff must be approved by the Engineer.

**Insert**

**Clause 34: Engagement of Staff and Labour**

In view of the large labour force involved in the labour based works the Contractor shall observe the following:

a) The Contractor shall employ casual labour on a daily task or piecework basis wherever feasible. The size of the daily task shall be measured by the average productivity of a labourer during a normal working day of 8 hours and will vary with terrain, type of work and weather conditions. The Contractor must always ensure that task rates are fair and are approved by the Engineer.

b) The Contractor shall pay rates of wages and observe hours and conditions of employment which are not less favourable than the general level of wages, hours and conditions observed by other employers whose general circumstances in the industry in which the Contractor is engaged, are similar.

c) Where the absence of established rates of wages, hours and conditions of employment prevent the Contractor observing rates of wages, hours and conditions of employment ascertained under b) above, the Contractor shall be guided by written advice from the National Construction Council.

d) The Contractor shall provide equal employment opportunities for both men and women workers.

e) The Contractor must observe national legislation for the minimum and maximum working age. The Contractor shall under no circumstances use any form of forced labour.

f) The Contractor shall recognise the freedom of his employees to be members of trade unions.

g) The Contractor shall maintain adequate records of the time worked and payment made to his employees to demonstrate compliance with the requirements of this clause.

h) The Contractor shall, if required by the Engineer, furnish particulars of the rates of wages, hours and conditions of employment referred to above.

i) Any Contractor who fails to comply with the various legal instruments relating to ‘Regulation of Wages and Terms of Employment’ may be subject to termination of contract.

j) Should a claim be made to the Employer alleging the default of the Contractor in payment of wages, compensation or other entitlement under the various legal instruments relating to ‘Security of Employment’, ‘Workmens Compensation’, ‘Accidents and Occupational Diseases’ and ‘Regulation of Wages and Terms of Employment’ of any worker employed on the Contract and if satisfactory proof is furnished, the Employer may, failing payment by the Contractor, pay the claim or entitlement out of any monies due or which may become due under the Contract.
k) Recruitment of casual labour by the Contractor shall be undertaken with the participation and monitoring of a nominated representative of the Hanna Nassif representational body.

COMMENCEMENT TIME AND DELAYS

Sub-Clause 49(1): Period of Maintenance
Add paragraph
The Contractor shall not wait for the commencement of the period of maintenance to establish a maintenance regime as this may result in deterioration of the completed works. Regular labour based maintenance should be carried out on each completed section of work even before hand over.

MEASUREMENT

Clause 56. Works to be Measured
A general observation is that this could be an important provision which could avoid conflict in the case of excavation by a contractor (particularly of unsuitable material such as garbage) close to building foundations.

5. Form of Tender

Amount of Performance
It is suggested that consideration be given to reduction of the performance bond or surety to 5% of the tender sum. It is not recommended that this requirement be waived entirely. However, recovery of this sum is included in BOQ Preliminary Items.

Maximum Stipulated Time for Completion
Dependent upon packaging of works.

Percentage of Invoice Value of Listed Materials
Suggest 50%.

6. List of Tender Drawings

This would be amended to correspond with packaging of the works.

11. Bill of Quantities

11.1 Preamble
Delete paragraphs 1-3. Insert
‘Attention is directed to the Specifications and the drawings and these documents are to be read in conjunction with the Bill of Quantities. Some work packages will be undertaken by Contractors, others by the community. For this reason the items indicated in the Bill of Quantities have been split between cost of materials and execution of the work ie the cost of labour can be seen separately from the cost of materials.

Volume II

Throughout delete ‘Private Local Labour Based Contractor’ insert ‘Contractor registered with Contractors Registration Board as Civil Works Contractors Class VII (and VI) or Specialist Labour Based Maintenance Contractor’ or use ‘Contractor’ having defined the term in Volume I DEFINITIONS AND INTERPRETATIONS Sub-Clause 1(1) Definitions (b).
Although the spirit of reference to the Contractor has been retained, the Contractor has to comply with more onerous conditions than the community. It is suggested that in principle, there should be a single specification (perhaps in the longer term) for whatever body undertakes the works.

1. Preliminary & General

1.5 Sureties
Costs of provision of performance sureties will be reimbursed to the Contractor under BOQ Preliminary Item 1.2 (omitted from BOQ in Volume I). This proposal is endorsed.

1.6 Insurance
As 1.5 above, the Contractors’ costs to be reimbursed under BOQ Preliminary Item 1.3 (omitted from BOQ in Volume I). This proposal is endorsed noting that the statutory provision for workmens’ compensation and minimum third party risks quote minimum levels of cover now unrealistically low due to devaluation on the TSh since the legislation was introduced. Thus, the supplementary protection provided under this Item is most desirable and care must be taken to fix cover at a currently realistic figure for all insurances.

Insert

1.12 Hand Tools
Hand tools are used for all activities involved in labour based works except haulage and some compaction. The careful selection and proper maintenance of these tools are therefore an essential feature of any labour based programme. Hand tools have to be regularly maintained in order to remain in good condition. Regular greasing of wheelbarrows and sharpening of other tools can be carried out in the site camp, but tools with major defects should be replaced from stock as they will affect the productivity of workers. The Contractor shall be responsible for ensuring that any defective tools are removed from service.

The cost of providing hand tools must be included in the tender rates.

1.13 Site Safety
Special attention must always be given to matters affecting the safety of the staff and labour. The Contractor must ensure that newly recruited staff and labour are informed of the dangers of working on a construction site and the simple disciplines required to prevent accidents occurring. First aid kits should be available at identified locations and the contractor must ensure that a person trained in simple medical techniques is on site throughout the duration of the works. The Contractor shall also maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the engineer may from time to time prescribe.

1.14 Taskwork
Wherever possible work shall be carried out using taskwork. The principle of taskwork is that a labourer is given a measured quantity of work, a task, at the start of each shift. If the task is finished to the satisfaction of the supervisor before the end of the working day the worker may go home. It is important to understand that if a labourer completes a task in less than 8 hours he/she is paid in full and tasks should generally be set to be achievable in 70% of the working day. Any labourer who leaves work without permission before 8 hours is not eligible for payment for that day if the task is not complete. The Contractor must make sure that the task rate used to assign a certain task to each labourer is fair and manageable. Moreover, task rates for each activity vary depending upon the type of terrain and in-situ soil, weather etc. Therefore the Contractor is required to revise the task rates and corresponding payment.
procedures with the Engineer from time to time. All task rates being used must be approved by the Engineer.

Indicative task rates for overall estimating and planning purposes are listed below in Table A1. These rates are not to be taken as standard and definitive as they need to be tested with time and experience in Hanna Nassif.
## 2 Road Works

### 2.1 General Description

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>UNIT</th>
<th>DAILY TASK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting out</td>
<td>lin m</td>
<td>50 lin m/ wd</td>
</tr>
<tr>
<td>Stripping and grubbing</td>
<td>sq m</td>
<td>175 sq m/ wd</td>
</tr>
<tr>
<td>Site clearance</td>
<td>sq m</td>
<td>Dense 100 sq m/ wd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium 200 sq m/ wd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Light 350 sq m/ wd</td>
</tr>
<tr>
<td>Tree and stump removal</td>
<td>lin m dia</td>
<td>0.2-0.5 m/ wd</td>
</tr>
<tr>
<td>Boulders removal</td>
<td>No</td>
<td>Small 6-10 no/ wd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium 2-6 no/ wd</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Large 1-2 no/ wd</td>
</tr>
<tr>
<td>Sand/silt removal</td>
<td>cu m</td>
<td>5-13 cu m/ wd</td>
</tr>
<tr>
<td>Excavate ordinary soil</td>
<td>cu m</td>
<td>5 cu m/ wd</td>
</tr>
<tr>
<td>Excavate medium soil</td>
<td>cu m</td>
<td>3.5 cu m/ wd</td>
</tr>
<tr>
<td>Excavate hard soil</td>
<td>cu m</td>
<td>3 cu m/ wd</td>
</tr>
<tr>
<td>Excavate very hard soil</td>
<td>cu m</td>
<td>2 cu m/ wd</td>
</tr>
<tr>
<td>Excavate rock</td>
<td>cu m</td>
<td>0.8 cu m/ wd</td>
</tr>
<tr>
<td>Haul common fill or gravel</td>
<td>cu m</td>
<td>0 – 20m  8.5 cu m/ wd</td>
</tr>
<tr>
<td></td>
<td>cu m</td>
<td>20 – 40m  7 cu m/ wd</td>
</tr>
<tr>
<td></td>
<td>cu m</td>
<td>40 – 60m 6.5 cu m/ wd</td>
</tr>
<tr>
<td></td>
<td>cu m</td>
<td>60 – 80m 5.5 cu m/ wd</td>
</tr>
<tr>
<td></td>
<td>cu m</td>
<td>80 – 100m 5 cu m/ wd</td>
</tr>
<tr>
<td></td>
<td>cu m</td>
<td>100 – 150m 4.5 cu m/ wd</td>
</tr>
<tr>
<td>Camber formation</td>
<td>cu m</td>
<td>7-10 cu m/ wd</td>
</tr>
<tr>
<td>Excavate gravel</td>
<td>cu m</td>
<td>3-4 cu m/ wd</td>
</tr>
<tr>
<td>Load common fill or gravel</td>
<td>cu m</td>
<td>8.5 cu m/ wd</td>
</tr>
<tr>
<td>Unload common fill or gravel</td>
<td>cu m</td>
<td>10 cu m/ wd</td>
</tr>
<tr>
<td>Haul 0.2-2 km</td>
<td>cu m</td>
<td>60 cu m/ td</td>
</tr>
<tr>
<td>Spread and water</td>
<td>cu m</td>
<td>13.5 cu m/ wd</td>
</tr>
<tr>
<td>Compact fill or gravel</td>
<td>cu m</td>
<td>Manual 9 cu m/ wd</td>
</tr>
<tr>
<td>Collect stones/sand</td>
<td>cu m</td>
<td>3-4 cu m/ wd</td>
</tr>
<tr>
<td>Load, haul, unload stone/sand</td>
<td>cu m</td>
<td>3-5 cu m/ wd</td>
</tr>
<tr>
<td>Install culvert</td>
<td>no</td>
<td>0.9 lin m/ wd</td>
</tr>
<tr>
<td>Mix and place concrete</td>
<td>cu m</td>
<td>1.0 cu m/ wd</td>
</tr>
<tr>
<td>Erect scour checks</td>
<td>no</td>
<td>4-8 no/ wd</td>
</tr>
<tr>
<td>Wet masonry work</td>
<td>cu m</td>
<td>0.5 cu m/ wd</td>
</tr>
<tr>
<td>Dry masonry work</td>
<td>cu m</td>
<td>1.0 cu m/ wd</td>
</tr>
<tr>
<td>Wet stone pitching</td>
<td>sq m</td>
<td>4-8 sq m/ wd</td>
</tr>
<tr>
<td>Dry stone pitching</td>
<td>sq m</td>
<td>8-12 sq m/ wd</td>
</tr>
</tbody>
</table>

wd = workerday   td = tractor day   rd = roller day

*Table A1*
Annex 13: Comparison between the engineers estimate, project budget and actual costs (Tsh) for infrastructure works in Hanna Nassif II.

<table>
<thead>
<tr>
<th>Contract</th>
<th>Engineer estimate</th>
<th>Actual costs works</th>
<th>%Increase cf. estimate</th>
<th>Tender price</th>
<th>%Increase cf. tender</th>
<th>Project budget</th>
<th>Actual costs works+CO WI design + superv</th>
<th>%Increase cf. project budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>community. contracts</td>
<td>119 168</td>
<td>129 533 871</td>
<td>9</td>
<td>92 144 204</td>
<td>41</td>
<td>129 533 871</td>
<td>129 533 871</td>
<td></td>
</tr>
<tr>
<td>private contracts</td>
<td>59 540 550</td>
<td>81 512 566</td>
<td>37</td>
<td>70 702 587</td>
<td>15</td>
<td>81 512 566</td>
<td>81 512 566</td>
<td></td>
</tr>
<tr>
<td>work to do</td>
<td>72 200 000</td>
<td>72 200 000</td>
<td>-</td>
<td>72 200 000</td>
<td>-</td>
<td>101 200 000</td>
<td>101 200 000</td>
<td></td>
</tr>
<tr>
<td>design cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25 376 770</td>
<td>25 376 770</td>
<td></td>
</tr>
<tr>
<td>total</td>
<td>250 909 000</td>
<td>283 246 437</td>
<td>13</td>
<td>235 046 791</td>
<td>21</td>
<td>362 061 000</td>
<td>337 623 207</td>
<td>-7</td>
</tr>
</tbody>
</table>

Comments:

1. Not all work is finished during the time of the study and therefore an estimate for the work still to do is included. For comparison with the project budget the consultants supervision, the profit and miscellaneous of 10% is included in work to do in the 2nd column of actual costs.