

TAFREN/ILO Livelihoods: RIRP/Cash for Work

Technical Paper #2:

Targeted Procurement: Aligning the Government Procurement System to Support Enhanced Employment Initiatives in Infrastructure in the Rapid Income Recovery Program

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Abstract

In support of the Government of Sri Lanka's (GoSL) Rapid Income Recovery Program (RIRP), Cash for Work Component (CFW), the ILO engaged independent consultant Mr. Ron Watermeyer to assess the potential for optimizing paid labour inputs to infrastructure and recovery works through targeted procurement approaches. The report reviews the range of targeted procurement procedures which may be used to provide income generation through construction works contracts; reviews and assesses the current Sri Lankan government procurement arrangements; identifies constraints to the implementation of a targeted procurement system to meet the immediate needs for rapid recovery and reconstruction work carried out by the Government Ministries and other agencies; and identifies what needs to be done in the longer term to facilitate implementation by the relevant management bodies. Throughout, practical examples from the South African experience are provided. The GoSL's procurement system is found to conform with "International Best Practice", and is well aligned for inclusion of the targeted procurement procedures and approaches outlined. Thus, major reform is unnecessary to incorporate targeted procurement procedures, very minor adjustments will suffice. The report makes specific recommendations on actions that can be taken in both the short term and the medium term to achieve these adjustments. The Annexes identify clauses and specifications that are useful, not only for government implemented contracts, but also should be used by other organizations to enhance the labour content of infrastructure and other recovery works.

¹ Minor edits by David Salter - ILO

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1 Introduction

1.1 Background

The Government of Sri Lanka has drawn up medium term rehabilitation and reconstruction plan for the tsunami affected areas- “Plan to Rebuild Sri Lanka” which was released on 19 January 2005. This is a broad based programme focusing on rehabilitation and reconstruction of infrastructure (services, buildings etc) housing and also includes rebuilding of the affected industrial sectors such as tourism and fishery. Moreover, recognizing that the tsunami has destroyed tens of thousands of jobs, the Government has taken steps to design mechanisms of rapid income recovery for the affected individuals and community, through both immediate and longer term measures. With assistance from the ILO, the government has laid out an initial framework for restoring livelihoods, namely the *Rapid Income Recovery Programme (RIRP)* as a component of the Plan to Rebuild Sri Lanka.

The Rapid Income Recovery Programme (RIRP) for Sri Lanka comprises 3 components: one involving protection for those who cannot work, one comprising jobs or training for those who can work and one comprising support for the revival of small enterprises. An Inter-ministerial Focus Group for Enhanced Employment Initiatives² in the Infrastructure Sector has been established to take forward the second and third component of the programme in the infrastructure sector.

Income generation within the components for people who can work is justified by:

- a) the need to provide immediate and longer term employment and enterprise opportunities for the tsunami affected population now out of work; and
- b) the broader need to contribute to poverty reduction.

The Terms of Reference for the establishment of an Inter-ministerial Focus Group for Enhanced Employment Initiatives in the Infrastructure Sector (25 January 2005) states that the objective of the Focus Group *is to ensure that all GoSL bodies in infrastructure reconstruction use an optimal mix of local resources during the process so as to maximize opportunities for employment of low income and other affected groups.*

The income generation strategy for the RIRP envisions two phases. The first addresses immediate social protection needs through Short term employment by means of **Labour-Intensive (LI) techniques** (labour and hand-tools only) which are essential but restricted to a narrow range of works. The second comprising work which will be recurrent under regular budgets of the infrastructure Ministries where by shifting wisely and carefully from the current conventional equipment-based work methods to more **Labour-Based (LB) techniques** (where there is a shift in balance between labour and equipment in the

² The Focus Group has met on three occasions. Due to time constraints and other more pressing problems facing the members. The group has agreed to meet again to deal with specific related problems as they emerge.

way the work is specified and executed) for selected works components, it will be possible to realize significant numbers of new jobs without compromising on the quality on the works or without affecting the timelines and costs of the works.

There are a number of constraints to the broadening of labour based (LB) and labour intensive (LI) approaches in the immediate aftermath of the Tsunami. Discussions between the ILO and the Ministry of Urban Development and Water Supply have identified procurement and tendering as key issues.

1.2 Terminology

The following terms are used in this report:

Employment-intensive is a generic expression used to describe strategies, programmes, projects, activities and assets which promote direct, short-term or long-term employment generation at all levels

Labour-Intensive Technology (LIT) describes a technology where labour and hand-tools only are used in limited categories of work.

Labour-Based Technology (LBT) describes a technology in which labour supported by equipment, is used as a cost effective method (when compared with equipment-based methods) of constructing or maintaining infrastructure to a specified technical standard.

Procurement is the process which creates, manages and fulfils contracts.

Targeted procurement³ (TP) is a contractual system which incorporates social targets and financial targets, which are set to meet policies on poverty alleviation, employment, geographical focussing and use of local materials and services.

1.3 The role of procurement in implementing the RIRP

Procurement is fundamental to the implementation of the RIRP and has a major impact on the rate and quantum of delivery of employment opportunities to low income and other affected groups. The Sri Lankan government procurement system needs to:

- a) be effective and efficient in the processes leading up to the award of contracts to ensure that the works (and the employment generated thereby) commences in the shortest possible time frames once a decision is made to proceed with a project, without compromising the intent and integrity of the procurement system; and

³ The South African National Standard SANS 10396: *Implementing preferential construction procurement policies using targeted procurement procedures*, defines targeted procurement procedures as a process used to create a demand for the services and supplies of, or to secure the participation of, targeted enterprises and targeted labour in contracts in response to the objectives of a preferential procurement policy and a preferential procurement policy as a procurement policy that promotes objectives additional to those associated with the immediate objective of the procurement itself.

Targeted procurement in the context of this report includes the concepts captured in both these definitions.

b) deliver best value procurement outcomes in terms of quality, cost and the imperative to optimize the use of local resources.

2 Scope of summary report

This summary report:

- 1) reviews the range of targeted procurement procedures which may be used to provide income generation through construction works contracts;
- 2) reviews and assesses the current Sri Lankan government procurement arrangements in the light of the objectives of the Inter-ministerial Focus Group for Enhanced Employment Initiatives;
- 3) identifies constraints to the implementation of a targeted procurement system to meet the immediate needs for rapid recovery and reconstruction work carried out by the Government Ministries and other agencies; and
- 4) identifies what needs to be done in the longer term to facilitate implementation by the relevant management bodies.

This report does not address the means by which the current procurement system can be streamlined to meet the challenges associated with the tsunami relief. The National Procurement Agency with inputs from the World Bank and Asian Development Bank and others, is preparing procurement guidelines for emergency rehabilitation and reconstruction operations due to disasters. These guidelines will inform the procedures that will be adopted by Implementing Agencies carrying out procurement for emergency rehabilitation and reconstruction operations due to disasters.

Note: These guidelines will be read in conjunction with the latest edition of the Guidelines on Government Tender Procedure and will take precedence over the latter in the event of a discrepancy. A wide range of procurement methods are currently being contemplated such as international competitive bidding, national competitive bidding, limited national bidding for works contracts, shopping for goods contracts, schedule of rates contracts, direct contracting and force account. They also facilitate contracting with Community Based Organisations.

3 An overview of targeted procurement procedures

3.1 Introduction

Targeted procurement procedures create a demand for the participation of targeted enterprises and targeted labour in contracts in response to the social and development policy objectives. This demand may, however, in certain instance be outstripped by the supply, in which case, supply side interventions may be required.

Standards South Africa have very recently published a number of construction procurement standards that address both the good governance aspects of procurement and the use of procurement to attain social and development objectives⁴. It should be noted that the procurement system embodied in these South African National Standards has the following end objectives:

Good governance: The procurement system shall be fair, equitable, transparent, competitive and cost effective.

Socio-economic / sustainable development: The procurement system must promote objectives additional to those associated with the immediate objective of the procurement itself.

3.2 Targeting framework for employment intensive works

3.2.1 General

Changes in methods and technologies, which increase the labour component in construction and the manufacture of materials, yield the greatest increase in the number of employment opportunities generated per unit of expenditure. This requires established companies to reduce their reliance on capital-intensive technologies. Suitable methods and technologies are usually readily implemented by small-scale enterprises, who, by being small, have limited access to capital and invariably operate and conduct their businesses in a more employment-intensive fashion and favour light non-equipment-based forms of construction.

⁴ SANS 1914 (2002), Targeted construction procurement
Part 1: Participation of targeted enterprises.
Part 2: Participation of targeted partners in joint ventures.
Part 3: Participation of targeted enterprises and targeted partners in joint ventures.
Part 4: Participation of targeted enterprises and targeted labour (local resources).
Part 5: Participation of targeted labour.
Part 6: Participation of targeted enterprises in concession contracts;

SANS 10396 (2003), Implementing preferential procurement policies using targeted construction procurement procedures;

SANS 10403 (2003), Formatting and Compilation of Construction Procurement Documents; and

SANS 294: 2004, Construction Procurement Processes, Procedures and Methods.

The choice of technology is generally made during the basic design phase of construction works contracts, whereas the choice of construction method/method of manufacture is usually decided upon during the implementation phase.

Two alternative procurement approaches to implementing employment-intensive works methods can be adopted.

3.2.2 Product / service specification⁵

In this approach, the following may be specified as a requirement of the contract:

- a) the use of specific labour-intensive or labour-based technology (or both); or
- b) the employment of targeted labour (particular communities such as those affected by the tsunami or population groups such as women) or the use of local resources (enterprises and labour located within geographic regions or which have been affected by the tsunami) wherever possible.

The economic viability of this method where the technology is specified is, however, dependent on the ability of the designer / specifier to forecast cost.

(A variation to this approach is to specify a minimum expenditure on targeted labour or targeted enterprises. This approach is not, however, recommended unless the quantum of the expenditure is readily achievable.)

3.2.3 Award criteria (tender evaluation criteria)

In this approach, a preference along side normal commercial evaluation criteria is offered to a tenderer for certain undertakings during the performance of the contract.

Option 1: A preference in a fixed amount can be awarded to a tenderer who undertakes to adopt a specific labour-based or labour intensive technology. Tenderers who opt for the preference submit a tender price based on satisfying requirements using the specified technologies. Tenderers who believe that the cost of performing the works using the specific technology is more expensive than the preference margin, will obviously not claim a preference and perform the contract using equipment based technologies. In this approach, the preference sets the maximum cost premium that government is prepared to pay and the market determines whether or not it can achieve government's employment objectives economically.

⁵ Standards South Africa has published SANS 1921-5, Construction and management requirements for works contracts Part 5: Earthworks activities which are to be performed by hand, which identifies earthworks activities and sub-activities which are performed by hand. Annexure B illustrates the manner in which this approach has been implemented in South Africa in a national employment creation program.

Option 2: A variation to this approach is to offer a variable preference to tenderers depending upon the percentage of the contract value that they commit to spend on local resources and targeted enterprises. In this approach, tenderers are typically offered choices in technologies and methods. (See Annexures C and D).

The awarding of preferences when evaluating tenders enables tenderers to tender to use their knowledge, skill and creativity in arriving at an optimum economic mix of equipment, technology and labour in order to meet objectives and win tenders. Any potential price premium in this method 2 can be readily assessed during the evaluation of tenders. The award criteria method therefore has the distinct advantage that tender prices will usually fall within acceptable limits and economic justification of decisions relating to employment generation will not be necessary.

Tenderers that embrace labour-intensive and labour-based technologies in support of government objectives will, in terms of this approach, have competitive advantage.

3.2.4 Resource specifications

Resource standards (specifications):

- describe the general requirements for engaging targeted enterprises and / or targeted labour on a contract for the provision of supplies, services or works, as relevant;
- specify the contract participation goal (the value of a percentage of the value of the contract which represents the inputs of targeted enterprises and/or targeted labour in the performance of the contract);
- set out the methods by which the contract participation goal will be measured, quantified and verified in the performance of the contract;
- describe the means by which:
 - progress towards the attainment of the contract participation goal is to be monitored;
 - compliance with requirements will be verified and monitored; and
 - the contract participation goal will be adjusted to accommodate variations to the scope of the work in the performance of the contract.

These resource standards in effect set the framework within which the prime or main contractors structure and marshal their resources in the performance of a contract should they undertake to satisfy a contract participation goal in the performance of the contract.

Resource specifications are required to specify and describe contract participation goals at tender stage. Tenderers can either tender contract participation goals (i.e., offer to engage targeted enterprises, targeted labour or a combination thereof in tendered amounts), or agree to achieve specified contract participation goals in the performance of the contract (See Annexure C). Alternatively, they can be used to measure the quantum of employment generated in the performance of the contract (see Annexure B).

3.2.5 Unbundling of contracts

Small-scale enterprises can participate in procurement in one of two ways. They can either contract directly with a contracting authority, or act as a subcontractor, supplier or service provider to a prime contractor in the delivery chain. The breaking down of contracts into smaller components is not always justifiable, particularly for engineering and construction works. The reasons for this include division of responsibilities, interdependence of activities, programming, duplication of establishment charges and under-utilization of resources. The breaking down of a contract into smaller prime contracts in order to accommodate the aspirations of smaller firms can, also, have a negative impact on cost and time and place a considerable administrative burden on implementing agents.

The options available to do this include:

- a) requiring contractors to subcontract portions of their contracts in accordance with the requirements of a resource specification⁶ so as to obtain manufactured articles and supplies from, and engage service providers who are small businesses (direct participation);
- b) requiring joint venture formation between large businesses and small-scale enterprises (structured joint venture) in accordance with the provisions of a resource specification;
- c) procuring works in the smallest practicable quantities (prime (direct preference)); and
- d) providing third party management support to enterprises which are not capable of operating as prime contractors (development contracts).

The strategies which make use of resource specifications require prime contractors to “unpack” their contracts into smaller contracts and to procure the services of small businesses to perform such contracts and to administer them and, in so doing, remove this burden from implementing agents.

3.2.6 Third party management support⁷

In this arrangement, a contracting authority provides third party management support in the form of service providers who supply specific management services which typically relate to construction and materials management, or the management of the manufacture of materials. They also advise, assist and train fledgling contractors, embryonic

⁶ in the SANS 1914

⁷ SANS 1921-4, Third-party management support in works contracts, establishes requirements for construction management services, materials management services or a combination of such services in engineering and construction works contracts in which the employer appoints third parties to provide certain resources which a works contractor lacks.

enterprises or aspirant entrepreneurs (targeted enterprises) in the execution of contracts as prime contractors and ensure that work progresses satisfactorily.

An implementing agent can directly contract a third party to render any necessary support, either on a competitively tendered, or a cost reimbursable basis. In such circumstances, the contracting authority has a direct contract with both the third party management support service provider and the targeted enterprise. There is, however, no contract between the service provider and the targeted enterprise; nor should there be. In this arrangement, the contracting authority's risk of the targeted enterprise not executing the contract satisfactorily can be minimised by requiring the service provider to provide on-site support and monitoring. The service provider cannot be held responsible for the performance of the targeted enterprise but only for the support services provided, for example, timeous supply of plant and the monitoring of the targeted enterprises to ensure that they make satisfactory progress, show technical competence and generally fulfill their other contractual obligations. The service provider is, in short, only at risk for its own negligence, a risk which is normally insurable in terms of professional indemnity insurance.

Third party development support can also be provided by requiring prime contractors (well established contractors) to enter into joint venture with targeted enterprises (developing contractors) in accordance with resource specifications, upon award of the contract. In this manner, prime contractors are obliged to provide third party management support to targeted enterprises which they engage as joint venture partners in order to achieve contract participation goals, without the contracting authority imposing the manner in which this is to be structured and achieved⁸.

Although the prime contractor is held accountable for the outcome of the project, the resource specifications make provision for the contracting authority to relieve the contractor of his contract participation goal obligations under certain circumstances in order to reduce his risk exposure.

⁸ The resource specification SANS 1914-2 (Participation of targeted partners in joint ventures) is suitable for this purpose.

4 A review of the Sri Lankan procurement system from a target procurement perspective

4.1 Introduction

Sri Lanka has well developed guidelines for procurement, standard bidding packages and standard specifications which in most instances align well with international best practice. The National Procurement Agency is currently updating the *Guidelines on Government Tender Procedure*. The Institution for Construction Training and Development has a range of standard bidding packages and standard specifications which must be used when procuring works.

4.2 Guidelines on Government Tender Procedure (August 1997)

Government procurement in Sri Lanka is regulated through Chapter XIII of the Financial Regulations and several circulars issued by Treasury. The Ministry of Finance and Planning has issued “*Guidelines on Government Tender Procedure (revised edition-August 1997)*” to govern procurement financed by both public and donor funds. These guidelines consist of two parts:

- Part I deals with procurements financed by public funds.
- Part II deals with Private sector financed projects.

The guidelines prescribe the use of Standard Bidding Documents as far as is practicable and make provision for a District Price Fixing Committee and, where appropriate, a Divisional Price Fixing Committee to fix ceiling rates for:

- construction material such as metal, rubble, sand , lime etc
- transportation of construction material and hiring charges of equipment
- labour engaged in construction, maintenance and repair works.

The rates fixed by the committee may be used by the Departments for their works as a ceiling price within the same district. In the case of works that are difficult to foresee, the Head of a Construction Department may give out work to selected contractors at agreed rates, subject to these rates not exceeding the departmental rate and authority of the appropriate Tender Board being obtained where the full cost of the work is likely to exceed a prescribe amount..

The guidelines do address a number of socio-economic objectives which are pertinent to the RIRP. These are listed in Annexure E. These are essence establish precedents for:

- promoting the use of Sri Lankan materials and the specification of Sri Lankan labour in works contracts;
- the application of preferences;
- entrusting construction works to approved societies i.e. community based contracting...

4.3 Treasury circulars

Treasury Circulars issued by the Ministry of Finance from time to time modify the Guidelines on Government Tender Procedures. 33 Circulars have been issued between February 1998 and November 2003) and are published in Treasury Circulars pertaining to the Guidelines on Government Tender Procedure – 1997. Amendments to the Guidelines which impact on socio-economic objectives that are pertinent to the Rapid Income Recovery Program (RIRP) are listed in Annexure E.

4.4 Standard bidding packages

The Institute for Construction Training and Development has developed a number of standard bidding documents based on the conditions of contract tabulated in Table 1.

Table 1: ICTAD Standard Bidding Packages

Title	Base document	Recommended usage
Minor Contracts (2003)	FIDIC Short Form of Contract (1999)	Building and civil engineering projects of relatively small capital value up to Rs 10 million
Procurement of Work (January 2004)	World Bank Standard Bidding Document for Smaller Works	Measure and pay contracts using "International Competition" and national "Competition". Contracts between Rs 10 million and Rs 150 million and all procurements financed under the consolidated fund or private sector. May be used on works of a higher value which are not of a complex nature.
Major Contracts	FIIDC Conditions of contract for construction	Contracts above Rs 150 million and for contracts of a lesser value which are of a complex nature.
Design and build	FIDIC Conditions of Contract for Plant and Design	On contracts where the contractor is responsible for the design and construction of the works on specified approvals obtained from the employer.

Bidding documents, in terms of this publication, save for the design and build option, are typically assembled using the following sections:

Section 1: Instructions to bidders

Section 2: Standard Forms (Bid security, Letter of Acceptance, Agreement, Performance Security, Advance Payment Securities, Retention Money Guarantee etc)

Section 3: Conditions of contract

Section 4: Form of bid and qualification Information

Section 5: Bidding Data and Contract Data (no bid data for Minor Contracts)

Section 6: Specifications

Section 7: Bills of quantities

Section 8: Drawings

A check list before the submission of bids is also provided to facilitate compliance with bid requirements.

Employers are required to prepare bidding documents based on the guidance provided in each publication. The bidding and contract data allow the standard instructions to bidders and conditions to be made contract specific and incorporated by reference in the contract.

The instructions to bidders allows for preference to be given to domestic bidders as an option. Such preferences have to be included in the standard bid conditions. For example, the instructions to bidders in the Procurement of Works states in clause 30 (preference for domestic bidders) states “*Not used unless specified in bidding data*”. The sample bidding data for these items suggests the following wording:

Domestic Contractors are eligible for a 10% margin of preference in the comparison of bids with those of bidders who do not qualify for the preference. To be eligible for domestic preference the bidders shall:

- be registered in Sri Lanka
- have more than 50% ownership by nationals of Sri Lanka

The following procedure will be used to apply the margin of preference:

- responsive bids will be classified into the following groups:
 - i) Group A: bids offered by domestic bidders; and

- ii) Group B: all other bids offered.

For the purpose of evaluation and comparison of bids only, an amount equal to 10% of the evaluated Bid prices determined in accordance with Clause 29.2(a), (b) and (d), will be added to all bids classified in Group B.

No preferences are included in the minor bidding package. Preferences are only applied where foreign bidders are permitted to submit bids. (Bidding is usually confined to domestic bidders holding a valid regular membership of the National Construction Association of Sri Lanka (NCASL) at the time of collection of bidding documents and at the time of award as well.)

The Conditions of Contract in all cases link contractual requirements to the specifications. The guidance notes for specifications advise that standard specifications published by ICTAD or any other Standard Specifications approved by Government be used.

The Institute for Construction Training and Development has developed a range of Standard Bidding Document for:

SCA/3/1	Irrigation and Land Drainage
SCA/3/2	Water Supply Sewerage and Storm Water Drainage
SCA/3/3	Reclamation works
SCA/3/4	Ground water exploration and exploitation
SCA/4	Building Works (Vol 1)
SCA/4	Building works (Vol 2)
SCA/5	Construction and maintenance of bridges
SCA/6	Coastal Harbour Engineering Works
SCA/8	Electrical and Mechanical Works

Some of these specifications address aspects of construction that could be undertaken by hand.

General the specifications do not specify what equipment is to be used. There are, however, instances where equipment is specified, egg: *the specification for Irrigation and Land Drainage states that basic land leveling shall be done with machinery approved by the Engineer.* In other instances egg trench excavation in the Specification for the Construction and Maintenance of Bridges, the requirements don't stipulate the type of equipment i.e... *trench excavation shall be carried out using equipment and tool approved by the engineer.*

Annexure F outlines aspects of the earthworks specifications which relate to labour-intensive technologies.

The standard specifications also make reference to rubble masonry, dry rubble walling, water bound and dry bound macadam bases, penetration macadams.

Measurement and payment is included in the civil specifications

4.5 Alignment of the Sri Lankan government procurement system with targeted procurement procedures⁹

The Sri Lankan government procurement system aligns well with the targeted procurement procedures outlined in section 3. There is no need to undertake any material procurement reform to enable targeted procurement procedures to be incorporated in the Sri Lankan government procurement system. Very minor adjustments will suffice.

⁹ The formatting of standard bidding packages is well aligned with the South African National Standards. As a result, the incorporation of targeted procurement procedures in bidding documents is a relatively straightforward, following the guidance provided in several of the published standards.

5 Emerging needs in Sri Lanka

At the first meeting of the Inter-ministerial Focus Group for Enhanced Employment Initiatives in the Infrastructure Sector the following flowed out of the discussion:

- 1) The first priority is the re-construction of houses and related services in the tsunami affected areas and the construction of new houses and related services and the envisaged site clearing operations should the planned 100m “house free” zone from the sea be declared.
- 2) There a number of employment intensive low volume gravel road projects.
- 3) There is an increasing demand for surfaced roads

The construction of houses (70% single storey and 30% double storey) using traditional masonry construction in the wake of the tsunami will present a number of challenges. There is already a shortage of suitable sand aggregates in Sri Lanka. (See Annexure H). Skilled labour as well as building materials is in short supply and the demand following the tsunami far outstrips the supply. As a consequence alternative materials and housing systems may have to be introduced.

There are a number of challenges in introducing new housing systems. Certain housing systems may not be acceptable to the community. Standards need to be put in place to ensure that these systems are fit for purpose. There is currently no assessment body in Sri Lanka that can undertake the necessary assessments.

Building systems that involve on site manufacture of building units are most likely to be acceptable to communities as the technology is not that different from traditional masonry construction. They are also likely to generate significant employment opportunities and thereby present income generating opportunities for those affected by the tsunami.

The question of recycling and reusing some of the material in damaged homes also needs to be looked into. This is a very employment intensive activity.

Gravel is in short supply in several areas. There is accordingly a need for alternatives forms of road construction to be identified, particularly those technologies that are employment intensive.

6 Recommended actions

6.1 Short term tsunami related actions

- 1) The Inter-Ministerial Focus Group should:
 - a) provide a concise definition of the target group(s) who are to be employed in employment intensive construction projects which relate to reconstruction works associated with the tsunami;
 - b) establish a standard daily wage rate for the target group;
 - c) decide if the quantum of employment provided to the target group is to be measured.
- 2) The Institute for Construction Training and Development should, taking account of 1) above:
 - a) develop a specification for activities which are to be undertaken by means of labour-intensive technologies, based on the content of Annexures A and F; and
 - b) a guideline for the implementing of the labour-intensive specification in the standard bidding packages.
- 3) The National Procurement Agency should make it a requirement that in all reconstruction work relating to the tsunami, all works covered by the labour-intensive specification must be undertaken using the ICTAD specification.
- 4) The chairman of the Urban Development Authority should approach the Society of Structural Engineers, Sri Lanka, which is currently chaired by Mr S.A. Karunaratne, and the Institution of Structural Engineers' country representative, Professor Priyan Dias (see Annexure H for their contact particulars) to review the contents on Annexure J and report on the differences between structural actions in Sri Lanka and South Africa. In particular, they should be approached to provide advice on earthquake actions.
- 5) The reuse of building materials should be investigated as this is a very labour intensive activity. Should it prove to be viable, this activity should be undertaken by the tsunami affected community.
- 6) The ILO, the Institute for Construction Training and Development and the Urban Development authority should approach Agreement South Africa with a view to investigating the viability of introducing the BESA building system (open certificate system) in Sri Lanka, particularly through community based organizations.
- 7) South Africa Agreement Certificate holders who have building systems that embrace on-site manufacture of building units should be approached to make contact

with the Chairman of the Urban Housing Board to discuss the possible application of their systems in Sri Lanka.

8) Alternative housing systems should only be accepted in Sri Lanka if they are certified as being fit for purpose by a member of the World Federation of Technical Assessment Organisations¹⁰.

6.2 Medium to long term actions relating to labour-based technologies

The ILO should identify labour based technologies that have been used in Asian countries to expand the base of labour-based technologies listed in Annexure G.

All ministries which have responsibilities for the provision of infrastructure should:

- review past construction practices that may have fallen into disuse for whatever reason with a view to adding technologies to the list;
- review the identified technologies and short list the technologies that may have application in Sri Lanka;
- evaluate by means of trials, test sections etc the short listed technologies; and
- establish the viability and cost premium, if any, associated with the technology should the trials and tests sections indicate the technical acceptability of the technology.

3) The Institute for Construction Training and Development should develop standard specifications for technologies that are found to be viable.

4) The National Procurement Agency should be approached to amend the government procurement guidelines to introduce preferences relating to the choice in technology, should this be necessary.

¹⁰ Agreement South Africa is a member of this federation.

Annexure A: The systematic application of Labour-based technologies in South Africa

The South African Construction Industry Development Board has published a Best Practice Guide for Labour-Based Methods and Technologies for Employment Intensive Construction Works which comprehensively documents a number of practices which have successfully been used in South Africa. There are also a number of other “labour friendly” technologies which are in common use. (See Annexure G).

The challenge is to expand this list of available technologies and to identify which have application in Sri Lanka. (Some of the listed technologies such as the water bound macadam are already in use in Sri Lanka).

South Africa has an extensive government housing programme aimed at providing houses for the poor at scale. Several new housing systems have been developed to cater for the demand for construction of houses using local labour or by communities. In terms of South Africa’s national building regulations, such systems can only be used if they are the subject of an Agreement certificate (see Annexure H), i.e. they are certified as being fit for purpose by an assessment body. Annexure H outlines some of the systems that have been developed in South Africa as an alternative to traditional masonry construction that involve on site manufacture of building materials.

Holders of Agreement certificates fall within two categories. The most commonly encountered category is where only the certificate holder or his licensees who are registered as such with Agreement South Africa may claim compliance with a certificate. (Agreement South Africa conducts regular inspections of the factory and/ or site and receives a report on the inspection for quality assurance purposes. It is the certificate holder’s responsibility to ensure that the licensee carries out the work in compliance with the certificate and in accordance with the approved quality system.)

The other category is that of an open certificate. The concept of an open certificate is that the technology is not the intellectual property of any company or individual and the information is available to anyone who wishes to use it. Any competent person, company or institution who wishes to use this system, is capable of carrying out this work in accordance with the terms and conditions of certification and undertakes to do so, may apply to Agreement South Africa to be registered as a holder of these open certificates.

It should be noted that Agreement South Africa assessments exclude earthquake loading. There is some debate in Sri Lanka on whether or not earthquake loading needs to be taken into account. At the same time, the wind loads in Sri Lanka may be higher than those encountered in South Africa. These technical issues need to be resolved before any of these building systems are used in Sri Lanka. (Annexure J sets out the structural safety parameters used in Agreement South Africa assessments.)

Annexure B: Specifying labour intensive technologies in construction works contracts¹¹

1 Add the following to the contract data

Payment for the labour-intensive component of the works

Payment for works identified in the Scope of Work as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the scope of work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.

2 Provide the following in the scope of works (specification)

DESCRIPTION OF THE WORKS

Employer's objectives

The employer's objectives are to deliver public infrastructure using labour intensive methods

Labour-intensive works

Labour-intensive works comprise the activities described in the Labour-Intensive Specification. Such works shall be constructed using local workers who are temporarily employed in terms of this scope of work.

EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS

1.1 Requirements for the sourcing and engagement of labour.

1.1.1 Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

1.1.2 The rate of pay set for the Special Public Works Programme is R per task or per day.
(Insert value determined by public body in terms of clause 2.2 of these Guidelines)

1.1.3 Tasks established by the contractor must be such that:

- a) the average worker completes 5 tasks per week in 40 hours or less; and
- b) the weakest worker completes 5 tasks per week in 55 hours or less.

1.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 1.1.3.

1.1.5 The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:

- a) where the head of the household has less than a primary school education;
- b) that have less than one full time person earning an income;
- c) where subsistence agriculture is the source of income.
- d) those who are not in receipt of any social security pension income

1.1.6 The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:

- a) 60 % women;

¹¹ Extracts from the South African Department of Public Works Guidelines for the Implementation of Labour Intensive Projects under the Expanded Public Works Programme (EPWP)

- b) 20% youth who are between the ages of 18 and 25; and
- c) 2% on persons with disabilities.

1.2 Specific provisions pertaining to SANS 1914-5

1.2.1 Definitions

Targeted labour: Unemployed persons who are employed as local labour on the project.

1.2.3 Contract participation goals

1.2.3.1 There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

1.2.3.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.

1.2.4 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

1.2.5 Variations to SANS 1914-5

1.2.5.1 The definition for net amount shall be amended as follows:

Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

1.2.5.2 The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

1.3 Training of targeted labour

The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

GENERIC LABOUR INTENSIVE SPECIFICATION

Note: As an alternative use can be made of SANS 1921-5, *Construction and management requirements for works contracts Part 5: Earthworks activities which are to be performed by hand*

Scope

This specification establishes general requirements for activities which are to be executed by hand involving the following:

- a) trenches having a depth of less than 1.5 metres
- b) stormwater drainage
- c) low-volume roads and sidewalks

Precedence

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

Hand excavateable material

Hand excavateable material is material:

a) granular materials:

- i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or

- ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

b) cohesive materials:

- i) whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
- ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

Note: 1) A boulder, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.
 2) A dynamic cone penetrometer is an instrument used to measure the insitu shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60° with respect to the horizontal) into the material being used.

Table 1: Consistency of materials when profiled

GRANULAR MATERIALS		COHESIVE MATERIALS	
CONSISTENCY	DESCRIPTION	CONSISTENCY	DESCRIPTION
Very loose	Crumbles very easily when scraped with a geological pick.	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in upto 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of geological pick; requires many blows for excavation.	Stiff	Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point.

Trench excavation

All hand excavateable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

Compaction of backfilling to trenches (areas not subject to traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers

- to 90% Proctor density;
- such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or
- such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

Excavation

All hand excavateable material including topsoil classified as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

Clearing and grubbing

Grass and small bushes shall be cleared by hand.

Shaping

All shaping shall be undertaken by hand.

Loading

All loading shall be done by hand, regardless of the method of haulage.

Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

Offloading

All material, however transported, is to be off- loaded by hand, unless tipper-trucks are utilised for haulage

Spreading

All material shall be spread by hand.

Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

Grassing

All grassing shall be undertaken by sprigging, sodding, or seeding by hand.

Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must to be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Grout shall be mixed and placed by hand.

Annexure C: Extract from SANS 10396, Implementing employment intensive infrastructure projects which target the increase of employment opportunities generated per unit of expenditure

G.1 Introduction

Changes in methods and technologies, which increase the labour component in construction and the manufacture of materials, yield the greatest increase in the number of employment opportunities generated per unit of expenditure. This requires established companies to reduce their reliance on capital-intensive technologies. Suitable methods and technologies are usually readily implemented by small-scale enterprises, who by being small, have limited access to capital and invariably operate and conduct their businesses in a more employment-intensive fashion and favour light, non-equipment-based forms of construction.

Various statistics have been put forward to quantify the impact of introducing employment-intensive construction practices. Many of them relate to the methods of measurement which are adopted. The following parameters are commonly used to evaluate employment-intensive construction practices:

The multiplier in employment opportunities (i.e. the ratio of the total number of person hours generated in the construction of a specified structure, service or activity using labour-based technologies, to that using plant-based technologies).

Expenditure per unit of employment generated (i.e. the ratio of total construction costs excluding VAT, but including any management fees directly related to construction activities, to total volume of employment generated (man hours) in the construction of a structure or service.

Construction expenditure retained within the community.

This informative annex focuses on the use of the SANS 1914:5 resource specification (Participation of targeted enterprises) to encourage cost-effective employment intensive practices.

NOTE The fundamental difference between the SANS 1914:4 resource specification (Participation of targeted enterprises and targeted labour (Local resources)) and the SANS 1914:1 specification (Participation of targeted labour) is that the former targets enterprises and labour whereas the latter targets only labour. Many of the techniques presented in this annex can also be applied to the targeting of labour in terms of the SANS 1914 resource specification.

G.2 Defining targeted labour

Increases in employment opportunities generated per unit of expenditure on infrastructure projects can best be achieved by targeting unskilled/semi-skilled labour. Targeted labour may accordingly be defined in terms of statutory wage rates, for example, persons who earn not more than one and a half times the minimum statutory wage rate. In some instances, there may be merit, in the interests of local economic development, to include residency within a broad geographical area in the definition.

SAMPLE DEFINITION

South African citizens who permanently reside within the boundaries of and earn wages and allowances amounting to less than R..... per hour. It is incumbent on individuals to demonstrate their claims to such residency on the basis of identification and association with, and recognition by, members of the community residing within the aforementioned areas.

G.3 Encouraging contractors to make more use of targeted labour in excavation activities

In order to meet goals for the engagement of targeted labour, or to tender increased contract participation goals, contractors may have to undertake some, or all, soft excavations by the use of hand labour. In order to minimize their risk exposure in performing such activities, there needs to be

- a) a labour policy in place which sets out the conditions of employment for temporary workers (i.e. project specific workers)
- b) a mechanism in terms of which contractors can define the portion of the excavation works which will be excavated by hand methods.

If this is not done, contractors will not be able to increase job opportunities in earthworks activities as they would be exposed to unacceptable risks. The abovementioned employment policy and mechanism should, accordingly, be clearly set out in the tender documents and form an integral part of the contract.

The conditions of employment pertaining to the employment of temporary workers (i.e. project specific workers) can be described in the scope of work. (These conditions will not be necessary should project specific workers be engaged in terms of statutory labour provisions. It may, however, in certain circumstances be desirable to vary such provisions in order to increase the participation of targeted labour, in which case such conditions should be fully described.) SANS 1914-5 requires contractors to enter into formal contracts with targeted labour. Credit towards the attainment of contract participation goals can be denied should contractors fail to engage targeted labour in accordance with the conditions of employment as laid down in the scope of work.

A suitable mechanism to enable contractors to define portions of excavation work which may be carried out by hand methods is to permit contractors during the tender stage to nominate the quantity of materials which they wish to excavate using hand methods. The approach outlined below is suggested.

The initial classification of material to be excavated should be in accordance with the relevant provisions of a standard system of measurement. However, soft excavation to be undertaken by hand labour, using hand tools, can be further broken down by the introduction of an additional class of material, such as soft excavation Class A, in accordance with the provisions of the Pricing Data:

Table G.1 – Criteria for classifying material as soft excavation class A

1	2	3
Dynamic cone penetrometer - minimum number of blows required to penetrate 100 mm	Granular materials	Cohesive materials
	7-15 ^a	6 to 8 ^a
Consistency.	Dense - high resistance to penetration by the point of a geological pick; several blows required for removal of material.	Stiff / Very stiff. Stiff - can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers. Very stiff - indented by thumb-nail with difficulty; slight penetration of point produced by blow of geological pick.
^a Soft excavation Class A is material which, using a pick or equivalent hand swing tool, can only be excavated with difficulty..		

The total estimated quantity of excavation, as classified in terms of a standard system of measurement, should be indicated in the Pricing Data. The tenderer should be permitted to sub-divide this quantity into two components, namely, the quantity of material to be excavated by the use of powered, mechanical equipment and the quantity to be excavated by hand labour using hand tools.

One third of every quantity of excavation to be undertaken by hand labour should be entered against the appropriate extra-over items provided in the Pricing Data, but left blank, for soft excavation Class A. This will ensure that material which can be picked with difficulty is catered for and the transition from hand excavation to machine excavation is graded.

Should the tenderer fail to indicate a quantity of excavation to be undertaken by hand labour, notwithstanding that he would find it necessary to utilize hand labour, it will be assumed that all excavation, whether undertaken by machine, or by hand labour, is to be paid for at the rates tendered for machine excavation.

The contractor, should be required to undertake at least the quantities of excavation by hand labour which he tendered, unless the total quantity of excavation proves to be less than scheduled, in which case the minimum quantity to be undertaken by hand labour will be reduced pro-rata by the Employer's Representative. This procedure will also provide a basis for reducing contract participation goals should such adjustments be necessary.

Should the total quantity of excavation prove to be greater than that scheduled, the contractor may choose the method of excavation for the excess quantity, unless the rates for excavation by machine would result in lower costs than for

hand excavation, in which case the Employer's Representative will have the right to instruct the contractor to undertake the excavation by machine.

The Contract Prices can reflect this mechanism as follows:

<p>Insert the following into the conditions of tender: SOFT EXCAVATION In order to meet goals for the engagement of Targeted Labour, the Tenderer may intend to undertake some, or all, soft excavations by the use of hand labour. The initial classification of material to be excavated shall be in accordance with the relevant provisions of However, soft excavation to be undertaken by hand labour, using hand tools, shall be further broken down by the introduction of an additional class of material, viz, soft excavation Class A, in accordance with the provisions of the project specification. The total estimated quantity of excavation, as classified in terms of is indicated in the Pricing Data. The tenderer may subdivide this quantity into two components, viz. the quantity of material to be excavated by the use of powered, mechanical equipment and the quantity to be excavated by hand labour using hand tools. One third (1/3) of every quantity of excavation to be undertaken by hand labour shall be entered against the appropriate extra-over items provided in the Schedules for soft excavation Class A. Should the tenderer fail to indicate a quantity of excavation to be undertaken by hand labour, notwithstanding that he would find it necessary to utilize hand labour, it will be assumed that all excavation, whether undertaken by machine, or by hand labour, is to be paid for at the rates tendered for machine excavation</p>

Table G.2 – Sample pricing data

1	2	3	4	5	6
Item No.	Description	Unit	Quantity	Rate	Amount R C
3.1	Earthworks Excavate trenches in all materials, backfill and dispose of surplus material for stormwater pipes not exceeding 1,5 m deep (total quantity 1 500 m ³) to be allocated in items 3.1.1 and 3.1.2 below in accordance with Part 3 of the Conditions of Tender. Machine excavation				
3.1.1	Hand excavation	m ³ ^a		
3.1.2	Extra over 3.1.2 for hand excavation in soft class A.	m ³ ^a		
3.1.3	(Quantity to be one third of quantity entered under 3.1.2)	m ³ ^a		
3.2	Extra over items 3.1.1 and 3.1.2 for :- : Intermediate excavation : Hard rock excavation	m ³ m ³	250 150		

^a To be completed by the tenderer.

G.4 Encouraging contractors to implement employment-intensive road technologies

The labour intensiveness of roadworks is highly dependent upon the choice of technology and the cost of roadworks is, accordingly, sensitive to the choice of technology. If, however, the contractor is permitted to select the technology and contracts are awarded in terms of a goal/price mechanism, a balance between price and the attainment of socio-economic deliverables can be achieved.

A simple way to do this is to present tenderers with a range of options which are acceptable to the employer and to permit tenderers to tender and price what they see to be the most competitive options.

Pricing Data can reflect this mechanism as follows:

Item No.	Description	Unit	Quantity	Rate	Amount R C	
1.1	<p>Base</p> <p>Option A: Construct base course with graded crushed stone from commercial sources</p> <p>Option B: Construct dry/-waterbound Macadam base course with stone imported from designated sources. Construct base course using Option (to be completed by tenderer)</p>	m ²	2010			
1.2	<p>Pavement structure</p> <p>Option A : 150mm C4 subbase, 100mm G1 base, 20mm AC wearing course, complete</p> <p>Option B : 100mm C4 subbase, 100mm WM2 base, 20mm AC wearing course complete</p> <p>Option C : 100mm G7 subbase, 20mm bedding sand, 60mm type SA interlocking blocks complete Construct pavement using option (to be completed by tenderer)</p>	m ²	2000			

The following clause should be inserted into the Tender Data in order to cater for the different quantities which result from the different thicknesses of layerworks. This is important in the evaluation of tenders.

PAVEMENT STRUCTURES

In order to meet the contract participation goal, the Tenderer may select a pavement structure from the alternatives presented on the drawing. Each option or component thereof is scheduled separately in the Contract Prices. The Tenderer shall state in his tender under the relevant scheduled item which alternative his tender is based on. Tenderers will be bound to the pavement structure so selected. The quantities scheduled in respect of earthworks are based on the pavement design with the greatest depth. Adjustments will be made by the engineer in the tendered price to reflect changes in earthworks costs arising from pavement selections prior to the awarding of points for price.

Annexure D: Preferring arrangements where use is made of the SANS 1914 resource specifications

1 Preferring arrangements provided in the standard conditions of tender contained in SANS 294

F.3.11.3 Method 2: In the case of a financial offer and preferences:

- a) Score tender evaluation points for each financial offer.
- b) Confirm that tenderers are eligible for the preferences claimed and, if so, score tender evaluation points for preferring.
- c) Calculate total tender evaluation points.
- d) Rank tender offers from the highest number of tender evaluation points to the lowest.
- e) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

F.3.11.6 Score financial offers, preferences and quality, as relevant, to two decimal places.

F.3.11.6.1 Scoring financial offers

Score the financial offers of the remaining responsive tender offers using the following formula:

$$N_{FO} = W_i \times A$$

where

N_{FO} is the number of tender evaluation points awarded for the financial offer;
 W_i is the maximum possible number of tender evaluation points awarded for the financial offer as stated in the tender data;
 A is the number calculated using the formula and option described in table F.1 as stated in the tender data.

Table F.1 — Formulae for calculating the value of A^a

1	2	3	4
Formula	Basis for comparison	Option 1	Option 2
1	Highest price or discount	$(1 + \frac{(P - P_m)}{P_m})$	P/P_m
2	Lowest price or percentage commission/fee	$(1 - \frac{(P - P_m)}{P_m})$	P_m/P
^a P_m is the comparative offer of the most favourable comparative offer. P is the comparative offer of the tender offer under consideration.			

2 Sample set of tender data to facilitate the tendering of a contract participation goal in terms of a resource specifications i.e. one of the SANS 1914 standards)

The financial offer will be scored using Formula (option 1) where the value of W_1 is:

- 1) 90 where the financial value inclusive of VAT of all responsive tenders received have a value in excess of R 500 000; or
- 2) 80 where the financial value inclusive of VAT of one or more responsive tender offers equals or is less than R 500 000.

Up to 100 minus W_1 tender evaluation points will be awarded to tenderers who complete the preferencing schedule and who are found to be eligible for the preference claimed.

A maximum of 100 minus W_1 may be awarded for the extent to which the tendered Contract Participation Goal exceeds the specified minimum. The basis of award of preference points is:

$$N_p = \frac{(100 - W_1) \times (D - D_s)}{(X - D_s)}$$

where

- D = tendered Contract Participation Goal.
- D_s = the minimum Contract Participation Goal below which no preference will be granted, namely, %
- X = the maximum Contract Participation Goal above which no further tender evaluation points are awarded, namely %.

3 Sample preferencing schedule where preferences are granted in respect of the direct participation of targeted enterprises and / or labour

Note: This schedule should form part of the scope of works (specifications) in the contract.

1 DEFINITIONS

The following definitions shall apply to this schedule:

Insert definition for Targeted Enterprises and / or Targeted Labour in here.

2 CONDITIONS ASSOCIATED WITH THE GRANTING OF PREFERENCES

The Tenderer, undertakes to:

- 1) engage one or more Targeted Enterprises / Targeted Labour (adjust as necessary) in accordance with the provisions of the SANS 1914- (*insert part number and title as relevant*) as varied in Section 3 hereunder;

- 2) deliver to the Employer, within 5 working days of being requested in writing to do so, a completed Joint Venture Disclosure Form (Annex D of SANS 1914-1) and a Joint Venture Agreement, should a joint venture be proposed at prime contract level with Targeted Partners to satisfy Contract Participation Goal undertakings (*adjust wording to reflect documentation that is required or delete*);
- 3) deliver to the Employer, within 5 working days of being requested in writing to do so, a Targeted Enterprise Declaration Affidavit in respect of all Targeted Enterprises engaged at prime contract level to satisfy Contract Participation Goal undertakings (*delete if not required*);
- 4) accept the sanctions set out in Section 4 below should such conditions be breached;
- 5) complete the Tender Preference Claim Form contained in Section 5 below; and
- 6) complete the Supporting Contract Participation Goal Calculation contained in this schedule.

3 VARIATIONS TO THE TARGETED CONSTRUCTION PROCUREMENT SPECIFICATION SANS 1914- (*insert part number*)

The variations to SANS 1914- (*insert part number*) are set out below. Should any requirements of the variations conflict with requirements of SANS 1914- (*insert part number and title as relevant*), the requirements of the variations shall prevail.

Insert variations if any. If none, insert "There are no variations".

4 SANCTIONS

In the event that the Tenderer fails to substantiate that any failure to achieve the Contract Participation Goal relating to the granting of a preference was due to quantitative under runs, the elimination of items, or any other reason beyond the Contractor's control which may be acceptable to the Employer, it shall be liable to pay to the Employer a financial penalty calculated in the following manner:

$$P = 0,15 \times \frac{(D - D_0)}{(100)} \times N_A$$

where D = tendered Contract Participation Goal percentage.
 D₀ = the Contract Participation Goal which the Employer's representative based on the credits passed, certifies as being achieved upon completion of the Contract.
 N_A = Net Amount
 P = Rand value of penalty payable

5 TENDER PREFERENCE CLAIM IN RESPECT OF ENTERPRISE STATUS OR STRUCTURE OF THE TENDERING ENTITY

I / we hereby tender a Contract Participation Goal of% in order to claim a preference.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the firm or sole proprietor confirms that he / she understands the conditions under which such preferences

are granted and confirms that the tenderer satisfies the conditions pertaining to the granting of tender preferences.

Signature :

.....

Name :

.....

...

Duly authorised to sign on behalf of :

.....

Telephone :

Fax : Date :

.....

SUPPORTING CONTRACT PARTICIPATION GOAL CALCULATION

Insert Annex A: Tendered goal calculation from relevant part of SANS 1914

Annexure E: Extracts from Sri Lankan procurement guidelines and circulars which have relevance to targeted procurement procedures

1 Sri Lankan procurement guidelines

56 Local materials: *Departments must encourage the use of local materials as far as is possible in the execution of works by tenderers. This should be stipulated in the tender documents and a procedure for rejection should be elaborated on in the tender documents.*

57 Local labour: *It should be specified that only Sri Lankan labour be employed on works executed by tenderers.*

126 Application of preferences: *The General Treasury from time to time will determine and notify quantum of preferences applicable and its eligibility criteria. the preferences presently valid and their eligibility criteria are as follows:*

- *5% preference for Approved Societies i.e. Samurdhi Balakayas, Multi-Purpose Co-operative Societies; Co-operative Labour Societies (labour services only); Rural Development Societies; School Development Societies and Farmer Organizations approved by the appropriate authorities.*
- *20% preference for locally manufactured articles offered in competition with imported articles. (Eligibility criteria is minimum of 30% added value in Sri Lanka at ex-factory)*
- *7 ½ % preference for works contract (eligibility criteria is more than 50% Sri Lankan ownership of the company).*

World Bank and Asian Development Bank has approved the following preferences for projects funded by WB/IDA and ADB.

- *15% preference for locally manufactured goods (Eligibility criteria is minimum of 50% Sri Lankan ownership)*
- *7 ½ % preference for domestic works contractors (Eligibility criteria is the Company should have minimum of 50% ownership)*
- *The method for applying preferences is:*
- *at the first instance all the bidders should be divided into two groups, i.e. preference entitled group and preference not entitled group*
- *at the next step an amount equal to the preference should be added to each of the bid price of preference not entitled group hypothetically for comparison purpose.*
- *re-rank the bidders on the above basis.*

164.1 Entrusting of construction works to approved societies: *A head of a department or his delegate may authorize the entrusting of construction works to approved societies*

2 Extracts from Sri Lankan procurement circulars

Annexure 2 (Feb 1998): *This circular facilitates the award of small scale construction contracts to approved societies and district level contracts to approved societies and registered contractors on a competitive basis in order to encourage village level organizations to use their own resources to develop village areas for creation of more employment opportunities especially for unemployed youths.*

Annexure 14 (July 1999): *This circular reinforces the requirement for local labour and requires that permission be obtained from treasury in extraordinary circumstances if skilled expatriate labour is required.*

Annexure 18 A (Dec 2000): *amends the application of preferences as follows:*

10% preference applicable for work contract funded by the Consolidated Fund

10% preference for works contracts (eligibility criteria is more than 50% Sri Lankan ownership of company)

Annexure 19:

Annexure 19A:

Annexure 30 (Oct 2002): *amends the application of preferences as follows:*

- *5% preference for Approved Societies*
- *10% preference for domestic works contracts (eligibility criteria is more than 50% of Sri Lankan Ownership of Company)*
- *20% preference for locally manufactured articles subject to eligibility criteria.*

Annexure F: Extracts from earthworks specifications which impact on labour-intensive technologies

Earthworks specifications (Irrigation and Land Drainage and Reclamation Works) classify earthworks for the purpose of excavation and payment. 5 categories are provided – Earth Excavation, Gravel Excavation, Soft Rock Excavation, Common Excavation and Rock Excavation. The first three are exclusively for hand excavation, viz:

***Earth excavation** implies the excavation of all materials smaller than the minimum particle size of gravel by the use of hand tools*

***Gravel excavation** will include round and water-worn pebbles varying from 4.75 to 75 mm in size, which may be mixed with clay as binding material in place and can be excavated by the use of hand tools.*

***Soft rock** excavation will include all weather / disintegrated rock in place which can be excavated by the use of suitable hand tools. Blasting may be required before removal.*

The Standard Specification for Construction and Maintenance of Roads and Bridges classifies earthworks materials as soft rock, hard rock, loose soils, ordinary soils, medium soils, hard soils, and marshy soils. Materials which could be excavated by hand include:

***Soft rock** shall comprise weathered rock, sand stone, lime stone, and such layers which can be excavated by picking, ripping and other similar means without resorting to blasting and / or sledging for removal.*

***Loose material** shall comprise all loose sands and silts and other materials, deposited by earthslips or similar occurrences, that can be excavated using shovel or similar tools. For purposes of this specifications the loose soils shall further be classified as wet or dry.*

***Ordinary soils** shall comprise all naturally occurring sands clays, silts organic soils, peat and varying combinations of these, the excavation of which required tools such as the mamotty in addition to the shovel.*

***Medium soils** shall comprise gravel sands and clays and varying combinations of these, the excavation of which requires tools such as the mamotty and the shovel but in the opinion of the engineer require greater effort per unit volume of excavation than for ordinary soils.*

***Hard soils** shall comprise materials from swamps and marshes containing watery peat and other vegetable matter, including logs, often found to exist in combination with sand, silt and clay which require special methods or excavation such as grabbing and pumping.*

Marshy material shall comprise materials from swamps and marshes containing watery peat and other vegetable matter, including logs, often found to exist in combinations with sand, silt and clay which require special methods for excavation such as grabbing and pumping.

The decision of the engineer is, in terms of the specification, final regarding the classification of materials.

Earthworks specifications (Irrigation and Land Drainage) make reference to the use of hand tools for compaction eg *if hand tools are used for compaction of the thickness of layer shall be between 100 and 150 mm.*

Annexure G: South African labour-intensive and labour-based technologies – Best Practice Guide

The Construction Industry Development Board has developed and published a Best Practice Guide for Labour-Based Methods and Technologies for Employment Intensive Construction Works which comprises the following:

Number	Title	CIDB document number
Best Practice Guideline 1	An overview of employment-intensive construction works	CIDB document 1022
Best Practice Guideline 2	Labour-based construction methods for earthworks	CIDB document 1023
Best Practice Guideline 3-1	Precast Concrete Products, Brick and Block Making	CIDB document 1024
Best Practice Guideline 3-2	The BESA Building System	CIDB document 1025
Best Practice Guideline 4-1	Labour-based Open Channel Flow Technology	CIDB document 1026
Best Practice Guideline 4-2	Rubble masonry dam construction technology	CIDB document 1027
Best Practice Guideline 4-3	Rubble masonry concrete arch bridge construction technology	CIDB document 1028
Best Practice Guideline 4-4	Foam bitumen gravel	CIDB document 1029
Best Practice Guideline 4-5	Cast in-situ block pavements	CIDB document 1030
Best Practice Guideline 4-6	Emulsion treated gravel	CIDB document 1031
Best Practice Guideline 4-7	Waterbound macadam	CIDB document 1032
Best Practice Guideline 4-8	Slurry bound and composite macadams	CIDB document 1033
Best Practice Guideline 4-9	Labour-based methods for unsealed roads	CIDB document 1034

The following publications also deal with labour-intensive and labour-based technologies:

Concrete Block Paved Roads	Macleod, Concrete Block Paved Roads: The Development Potential .Construction and Development .Series, Number 8. Development Bank .of Southern. Africa. September, 1993	Development Bank of Southern Africa.
Bituminous Surfacing	Methods and Procedures Labour Enhanced. Construction for Bituminous surfacings Manual 12, March 1993. SABITA.	Southern African Bitumen and Tar Association.

Bituminous Surfacings	Methods and Procedures Labour Enhanced. Construction for Bituminous surfacings Manual 11`, March 1993. SABITA.	Southern African Bitumen and Tar Association.
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Annexure H: Seminar Report on Post Tsunami Housing Strategies

The Society of Structural Engineers, Sri Lanka (ssesl@sltnet.lk; 2598120), conducted an information exchanging seminar on Post Tsunami Housing Strategies at the BMICH on 18 January 2005, with Mr S.A. Karunaratne (President) making the welcome address and Dr A.C. Visvalingam (Past President) in the chair. The seminar was co-ordinated by Uni-Consultancy Services, University of Moratuwa (gm-unic@mrt.ac.lk; 011-2650491), and drew a gathering of 350 persons from a variety of sectors (public, private, NGO) and professions (engineers, architects, planners, bankers, managers etc.). This release is being made to disseminate the main aspects of the seminar and to provide links to key resource persons.

Professor Samantha Hettiarachchi (sslh@civil.mrt.ac.lk; 011-2650567) and Dr Saman Samarawickrama (samans@civil.mrt.ac.lk; 011-2650567), both of the Moratuwa University, emphasized the importance of using coastal engineering modeling techniques to identify vulnerable areas on the coastline, and demonstrated how changes in local features (e.g. canals, slopes etc.) resulted in differing degrees of tsunami induced damage on 12/26.

Professor Priyan Dias (priyan@civil.mrt.ac.lk; 011-2650567), also from Moratuwa University, showed pictures of various structures damaged by the tsunami from the Dehiwela to the Ampara coast, highlighting the factors that contributed either to their vulnerability or robustness, and proposed guidelines for structures such as boundary walls, water tanks, single storey structures and two storey structures. Later on in the seminar he cautioned that the non availability of sand could thwart reconstruction efforts and also suggested that the debris from damaged structures be considered for use in building materials (after appropriate research).

Mr Hemantha Jayasundara (hemantha@uda.lk; 011-2872261) of the Urban Development Authority outlined the proposed coastal zones in which various types of construction would be restricted (i.e. 100 m from MSL contour, between 100 and 300 m; and from 300 m to 1 km). He gave examples of how cities would be re-planned in order to implement such proposals, and also said that various parcels of state land were being identified for housing construction.

Mr Rukshan Widyalkara (rukshanw@celltelnet.lk; 011-2596477), representing the Sri Lanka Institute of Architects (SLIA), revealed that the SLIA was in the process of developing generic plans for housing units – ones that would not rob a house of its individuality, whether in stand alone houses or apartment complexes.

Mr Nishantha Kamaladasa (nkamaladasa@hotmail.com; 011-2785628), Director of the Centre for Housing, Planning and Building (CHPB) emphasized the need for appropriate temporary shelter (demountable and re-usable), so that tsunami victims living in camps could quickly be restored to some degree of dignity. He presented various CHPB solutions for both temporary and permanent housing. The National Housing Development Authority (011-2422394) also has type plans for a variety of houses.

Dr Asoka Perera (ajp@civil.mrt.ac.lk; 011-2650567), once again from Moratuwa University but also representing an NGO, pointed out that people's participation in housing construction was important for developing a sense of ownership. He also advocated the use of non traditional building materials, such as his own cement: soil blocks and slipform walls, pioneered by the National Engineering Research & Development (NERD) Centre (011-5354597).

One of the points that emerged during the discussion was the need to design buildings in a rational and robust manner, not only to resist tsunamis but also to withstand earthquakes and cyclones.

Appendix I: Possible alternative Agrément South Africa certified walling systems

Agrément South Africa is an internationally acknowledged, independent agency for the technical assessment and certification of the fitness for purpose of non-standardised building and construction products/systems. Its authority and mandate is derived from the 1995 delegation of authority given to the Board of Agrément South Africa by the Minister of Public Works.

Members of the Board are drawn from both the public and private sectors and are appointed by the Minister of Public Works. The Board is supported by the technical agency based at the Division of Building and Construction Technology of the CSIR. The agency draws on the necessary expertise within the CSIR, the SABS and universities or elsewhere as is appropriate when undertaking evaluation programmes or technical investigations and when drafting certificates for approval.

Agrément South Africa is a member of the World Federation of Technical Assessment Organisations.

A scan of the Agrément South Africa web site indicates that there are several products (active and inactive) that have on-site manufacture of building material. These include:

<p><u>Africon Brick Building System</u> (single and double storey buildings)</p>	<p>The Africon Brick Building System utilizes interlocking solid concrete blocks (called Africon Bricks) which are dry-stacked and grouted to construct single and double storey buildings. Blocks are manufactured with horizontal tongues and grooves to facilitate interlocking, and with vertical slots to facilitate grouting the blocks together. Walls may be 170 mm or 310 mm wide depending on storey height and partition wall requirements. Walls incorporate reinforcement in each course with additional reinforcement at window and door head height and also below suspended concrete floor slabs to form ring beams. All surfaces of walls are finished with 15 mm thick plaster.</p>
<p><u>Besa 2 Building System (Schools, Day clinics & Offices)</u></p>	<p>The BESA 2 Building System encompasses:</p> <ul style="list-style-type: none"> • the manufacture of solid bitumen-emulsion stabilised adobe building blocks (BESA blocks) • the use of BESA blocks and bitumen-emulsion-stabilised mortar to erect 200 mm thick superstructure walls of BESA school buildings • reinforcement of the walls at regular intervals, with brickforce reinforcement and full-height cast-in-situ reinforced concrete columns together with cast-in-situ reinforced concrete ring beams, at wall head level • finishing the walls with stabilised earth plaster or a conventional cement/sand plaster • conventional foundations, surface beds, roofs, tiled roof coverings, services and finishes.
<p><u>Besa Building System</u> (houses)</p>	<p>The 200 mm thick walls of BESA Building System buildings are constructed of bitumen emulsion stabilised adobe blocks, mortar and plaster. They incorporate a composite concrete and block ring beam that stabilises the structure, provides suitable support and anchorage for the roof members and spans the door and window openings. External and internal wall surfaces can be finished in a variety of ways using the mortar mix or a cement/sand plaster. All other aspects of construction are conventional and utilise conventional building materials.</p>
<p><u>Hydraform Building System</u> (School buildings, clinics and other institutional (residential) buildings, small shops, offices, hostels, semi-detached, row houses and detached houses)</p>	<p>The Hydraform Building System consists of:</p> <ul style="list-style-type: none"> • conventional cast in situ concrete strip foundations and surface beds or cast in situ concrete beds with thickened edge beams and thickening under internal walls; • a combination of dry-stacked and mortar-bedded 220 mm and 110 mm thick soil-cement block walls, reinforced where specified ; • conventional roof construction which incorporates cross-bracing in the plane of the ceiling when the specified dimensional limitations are exceeded; conventional roof sheeting, clay or concrete roof tiles.

Megacom Housing System (single story attached and detached houses)	The Megacom building system comprises hollow interlocking concrete blocks that are dry-stacked (no mortar between horizontal and vertical joints) to form the walls of dwellings. The first levelling course is, however, bedded in mortar on the surface bed or strip footing. Core columns (cavities in the blocks filled with concrete and a continuous vertical reinforcing bar) stabilise external and internal walls and are required at specified positions. A continuous ring beam is formed above window and door height by placing reinforcement in a minimum of two horizontal rows of blocks and filling all cavities with concrete. Internal walls are bonded to external walls with hoop-iron clips and reinforcing bars. Internal and external gable walls are reinforced and the cavities above ring beam height are filled with concrete.
<u>Megacom Mantag Building System</u> (single story attached and detached houses)	The Megacom Mantag Building System utilises hollow interlocking concrete blocks that are dry-stacked for the erection of single storey attached and detached dwellings. The first levelling course of blocks is bedded in mortar on the surface bed or strip footings. Core columns are required at specified positions and a continuous ring beam is formed above window and door height. Walls are finished externally with a skim coat or with conventional plaster and an acrylic paint. Internally, walls may be skim coat plastered or plastered both sides.
Con-Cottage Building System*	<p>The Con-Cottage Building System is a labour-intensive building system which can maximise local participation and has been designed to provide protection from the elements during construction by first erecting temporary external wall formwork and supporting the roof construction on the formwork. The building system consists of:</p> <ul style="list-style-type: none"> • cast in-situ strip foundations with a strip of weldmesh reinforcement cast into the foundation to anchor the wall reinforcement; • temporary mild steel formwork to the external face of external walls, lined internally with weld mesh reinforcement, wire-tied to the foundation reinforcement. The corners of openings and internal wall junctions have additional weldmesh reinforcement; • timber rafters which are temporarily supported by the formwork and anchored with galvanised hoop-iron straps to the reinforcement. Profiled galvanised roof sheeting is fixed to the rafters, forming a sheltered working environment; • external walls of micro-concrete, applied in two layers to a minimum thickness of 50 mm; • internal walls constructed in the same way as external walls; • floors are conventional screeded or steel-floated concrete surface beds.
Dri-Block Building System* (Places of instruction, hospitals, shops, offices, dormitories and attached and detached housing)	The Dri-Block Building System is used to erect structures with dry-stack concrete block walls. The first course on the foundation or surface bed, is always bedded in mortar. The blocks are filled with concrete plus reinforcement to form core columns where required. A continuous ring beam is formed above window height by reinforcing the blocks and filling them with concrete. Internal walls are bonded to external walls with galvanised hoop-iron clips and reinforcing bars. Load-bearing internal walls are reinforced.
The Lockblock Drystack Housing System* (detached houses and ancillary free-standing outbuildings such as toilets, school structures, primary health-care facilities)	<p>The Lockblock Drystack Housing System comprises:</p> <ul style="list-style-type: none"> • conventional cast in situ concrete strip foundations and surface bed, or cast in situ concrete surface bed which may be reinforced, with thickened edge beam foundations; • foundation walls and superstructure walls constructed of modular, drystack, interlocking hollow concrete masonry units (blocks) with certain continuous vertical hollow cores in the units filled with concrete to form columns within the thickness of the walls (reinforced where specified); • special hollow concrete ringbeam units, filled with concrete and reinforced with steel rods to form continuous ringbeams in the thickness of the walls; • exterior wall surfaces plastered and painted; interior wall surfaces pointed and bagged or plastered; • conventional roof construction and roof coverings.
The Locktite Block Building System*	<p>The Locktite Block Building System consists of:</p> <ul style="list-style-type: none"> • conventional cast in situ concrete strip foundations and surface beds, with foundation walls of modular, drystack Locktite blocks filled with cement-stabilised soil (or concrete where required in certain positions), or cast in situ concrete surface bed with thickened edge beam foundations and thickened below internal walls; • superstructure walls of Locktite blocks drystack in stretcher bond; perpend and all the cavities in the units are filled with cement-stabilised soil; the walls are plastered and exterior surfaces painted; core columns are formed where specified by filling vertically aligned voids with concrete instead of cement-stabilised soil; • ringbeam constructed of two courses of hollow concrete masonry blocks that are inverted and filled with concrete and continuous horizontal steel reinforcement; • conventional roof construction and covering, the roof construction anchored to the reinforcement in the ringbeam.
Space Frame Construction System*	Space Frame Construction System walls are constructed using lightweight, three-dimensional welded wire frames, with or without a central core of polyurethane foam insulation, which are plastered to form

(school buildings, offices, hostels, houses).	<p>continuous wall surfaces. Concrete floor slabs or surface beds with thickened edge beams that form a stiffened raft, or conventional concrete strip foundations with masonry foundation walls and conventional surface beds, are used. The system may be used for buildings up to three storeys high provided that the structural design of the buildings is the responsibility of a professional engineer.</p>
The Wolfbrick Building System*	<p>The Wolfbrick Building System consists of:</p> <ul style="list-style-type: none"> • conventional cast in situ concrete surface beds thickened under perimeter and internal walls • superstructure walls constructed of modular, interlocking, hollow blocks of acrylonitrile butadiene styrene (ABS) plastic. Walls are filled with a sand-cement mix and incorporate core column reinforcement, reinforced concrete ring beams and roof holding down anchors; • conventional roof construction and roof coverings.

*Inactive certificates

Note: Certificates are generally listed as inactive at the request of the certificate holder (often because market conditions or other circumstances are unfavourable, but he nevertheless wishes to retain the certificate until such time as circumstances change).

A certificate holder owns the rights to the certificate and the certificated product. No one other than the certificate holder or a licensee appointed by the certificate holder and registered as such by Agrément South Africa can claim compliance with the certificate. At the same time, a certificate holder must abide by the terms and conditions of certification. In the case of a building system, he must build in accordance with the technical description set out in the certificate and exercise quality control in accordance with written procedures approved by Agrément South Africa. He may appoint licensees who may carry out the work and claim compliance but responsibility for such compliance and for control of the quality resides with the certificate holder.

It should be noted that the BESA system is the only system that is the subject of an open certificate. The concept of an open certificate is that the technology is not the intellectual property of any company or individual and the information is available to anyone who wishes to use it. Any competent person, company or institution who wishes to use this system, is capable of carrying out this work in accordance with the terms and conditions of certification and undertakes to do so, may apply to Agrément South Africa to be registered as a holder of these open certificates.

Annexure J: Structural performance criteria for housing in South Africa

This system needs to satisfy the following structural safety, structural serviceability and structural durability qualitative performance criteria:

Structural safety: Maintain strength and stability, with an appropriate degree of reliability, under all actions likely to occur during its design working life.

Structural serviceability: Perform, with an appropriate degree of reliability, within established parameters under all expected actions for normal use in terms of:

- local damage (including cracking) (which may affect the efficiency and appearance of the building and its components);
- deformation (which may affect the efficient use or appearance of the building or the functioning of the people).

Structural durability: Fulfill, with an appropriate degree of reliability, to its intended safety and serviceability performance in the environment in which it is located over the specified design working life when subject to its intended use in terms of one or more of the following:

- external and internal environmental agents;
- maintenance schedule and specified component design life;
- changes in form or properties

The representative actions are as follows:

AGENT	PERFORMANCE PARAMETER
HOUSE STRUCTURE	
Wind actions #	A free stream velocity pressure not less than 0,450 kPa
Seismic actions	None
Ground conditions and movements	In accordance with expected range of movements associated with the site
STRUCTURAL ELEMENT: ROOF	
Permanent actions	Self weight of covering, ceilings, structure and geysers, if any
Imposed actions*	<p>Accessible flat roofs:</p> <ul style="list-style-type: none"> a minimum uniformly distributed load of 2,0 kN/m² measured on plan; and a concentrated load of 1,5 kN applied over a plan area of 0,1 m x 0,1 m and placed in the position that produces the most severe effects. <p>Inaccessible roofs (no access is provided other than that necessary for cleaning and repair)</p> <ul style="list-style-type: none"> a minimum uniformly distributed load, acting vertically downward of $(0,3 + (15-A)/60)$ kN/m²; where A is the tributary area in square metres for the member or span under consideration, measured on plan, provided that the load has a maximum intensity of 0,5 kN/m² and a minimum intensity of 0,3 kN/m² where A is 3m² or less; and a concentrated load of 0,9 kN, acting vertically downward and applied over an area of 0,1m x 0,1m in any position. <p>Cantilevered balconies</p> <ul style="list-style-type: none"> a minimum uniformly distributed load of 4,0kN/m²; and a concentrated load of 3,0kN applied over a plan area of 0,1m x 0,1m and placed in the position that produces the most severe effects.
Wind actions	Uplift on roof of not less than 0,59kN/m ² Local uplift on eaves overhang of not less than 0,78kN/m ²

Snow actions	A uniformly distributed load corresponding to the expected depth of snow where a snow depth exceeding 250 mm can be expected to accumulate.
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STRUCTURAL ELEMENT: WALLS					
Wind actions	External walls Outward pressure on windows and doors : not less than 0,51kN/m ² Inward pressure on windows and doors : not less than 0,45kN/m ² Outward pressure walls : not less than 0,51kN/m ² Inward pressure on walls : not less than 0,37kN/m ² Horizontal pressure on the side of a House (pressure which causes racking) : not less than 0, 37kN/m ² Internal walls: : not less than 0,20 kN/m ²				
Permanent actions	Self weight of wall				
Imposed loads	Parapet and balustrade walls which guard a drop of more than 750mm, together with the members that give them immediate support, shall be capable of supporting either of the following service loads; <ul style="list-style-type: none"> • a concentrated force of 1kN acting in any direction vertically downward and horizontally inward or outward, and over 0,1m length for beam elements and over a 0,1m x 0,1m area for plate elements and acting at the top or any other position which is most severe; or • a distributed horizontal force of 0,5 kN/m applied at the top of the wall and acting outward. Either a horizontal concentrated force of 0,5 kN acting normal to the wall surface over an area of 0,1m x 0,1m at any point at a height of 1,3m above the floor level or a horizontal distributed force of 0,5 kN/m at a height of 1,3m, whichever is the most severe, or the soft body impacts (collapse) listed below.				
Soft body impacts	Two soft body impacts each generating an impact in Joules of:				
	Type of wall	Internal walls, external walls at ground floor (impact from the inside) and external walls at first floor and higher (impact from the outside)		Internal walls around staircases, external walls at first floor and higher (impact from the inside) and external walls at ground level (impact from the outside)	
		Service	Collapse	Service	Collapse
	Heavy weight construction	176	412	265	530
Light weight construction	132 (framing) 88 (cladding)	265	265	412	
Sharp body impacts	Two blows generating an impact in Joules of:				
	External walls		Internal walls		
	At ground floor (impact from the inside)		5,3	Non load bearing walls	5,3
	At ground floor (impact from the outside)		7,9	Load bearing walls	7,9
	At first floor and higher (impact from the inside)		5,3	Around stairwells	7,9
At first floor and higher (impact from the outside)		7,9			
Hail impacts	Hail impacts, on components other than glazing, generating an impact of 10 ± 2 Joules				
Door slamming	25 kg door slammed ten times from a position of 60° open, with a force of 150 N applied at the handle position in the direction of closure, such force being applied until the door makes contact with the frame.				
Fittings	Lightweight fittings (e.g. coat hooks, towel rails and medicine cabinets) having a mass 8 kg suspended 45 mm away from wall at any location. Medium weight fittings (e.g. hand basins cisterns, medium sized cupboards and 9 kg fire extinguishers) having a mass of 25kg suspended 45 mm away from the wall, at designated locations within the wall. Heavy weight fittings (required where there is a high probability that people will stand upon the fittings; eg wash troughs, sanitary ware basins, geysers and fire hose reels) having a mass of 135 kg suspended 345 mm away from the wall for a period of 5 minutes. Shelving: safe load nominated in the specification data.				
STRUCTURAL ELEMENTS: FLOOR LOADS					
Permanent actions	Self weight of flooring system (as determined by the supplier). Finishes (as determined by the supplier).				

Imposed actions[#]	<ul style="list-style-type: none"> • a minimum uniformly distributed load of 1,5 kN/m²; and • a concentrated load of 1,5 kN applied over a plan area of 0,1m x 0,1m and placed in the position that produces the most severe effects.
Vibrations	Nil.

Suitable tests, complete with acceptance criteria, are described in Agrément South Africa's Assessment Criteria for Building and Walling Systems: Structural Assessment of Dry-stack Masonry Building Systems (www.agrement.co.za), e.g.

- a) Test 1: Vertical load-bearing capacity of walls
- b) Test 2: Transverse flexure of walls
- c) Test 3: Horizontal load resistance/vertical spanning
- d) Test 4: Horizontal line load resistance
- e) Test 5: Racking load resistance
- f) Test 6: Response of buildings to simulated wind loading
- g) Test 7: Horizontal load on doors and windows and their immediate surround
- h) Test 8: Transverse flexure of gable walls
- i) Test 9: Soft body impact test
- j) Test 10: Steel tool impact test (hard body impact test).