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PART 1 - RATIONALE

Introduction
Construction work is dangerous. The International Labour Organisation (ILO) estimates at least 60,000 fatal accidents a year on construction sites around the world, that is one in six of all fatal work-related accidents.\(^1\) The global trade union federation puts the figure much higher at 108,000 with construction responsible for 30% of all work related accidents.\(^2\) Many more workers suffer from work related injuries and from occupational diseases arising from exposure to dangerous substances such as dust, chemicals, asbestos.

While securing a job in construction offers a potential route out of poverty for many of the world’s poorest, subsequent inability to work due to injury or ill-health can drive them and their families back into destitution.

Yet the causes of accidents and ill-health are well known and all of the deaths and injuries that occur in construction are foreseeable and preventable.\(^3\)

This briefing note provides guidance and examples of practical measures that can be adopted in procurement procedures and contract agreements to promote better Occupational Health and Safety (OHS) practice in infrastructure construction.

The briefing note is addressed in the first instance to two groups:

- Clients of the construction industry in developing countries who want to ensure a good standard of health and safety on one or more projects in which they are involved.
- Financiers of infrastructure construction in developing countries, notably Multilateral Development Banks (MDBs), bi-lateral and multi-lateral donors and some private banks, who need to adhere to the ‘socially responsible’ standards of their organisation.

The note is also potentially of interest to a third group - those involved in setting the rules for the procurement of works in developing countries. Many countries are currently reforming their procurement systems and aiming to bring them into line with the expectations of donors. Some of the suggestions in the note might be taken up by procurement agencies and incorporated into standard documentation.

It is recognised that many measures are needed to improve OHS, including an appropriate legal framework, an effective inspectorate, training of workers and supervisors, restrictions on working hours and wide availability of occupational health services. If these other measures are in place, procurement procedures and contract documents have the potential to act as important mechanisms to remind the parties to the contract of their obligations under the law.

When these other measures are lacking, an appropriate use of procurement procedures and contract documentation has the potential to raise the standard of OHS on individual projects. Hence procurement is a direct way for clients and donors to make a real difference to OHS in their area of influence.

The primary issue addressed in the note is the OHS of the workforce during the construction, maintenance and demolition of the assets.

Box 1: ICE/EAP previous publications
A report setting out how current procurement practices are hindering, or enabling, social development was published in November 2006, under the title Modifying Infrastructure Procurement to Enhance Social Development. In the second phase of the research we have been assembling evidence of successful attempts to use procurement to deliver social, economic and/or industrial development objectives. This is the second output from this process. The first, Increasing local content in the procurement of infrastructure projects in low income countries was published in November 2008. All reports can be downloaded from www.engineersagainstpoverty.org or www.ice.org.uk

The note does not provide detailed information on the numerous risks to health and safety that arise in infrastructure construction. The main hazards are well documented and are summarised in the Environmental Health and Safety Guidelines for construction and decommissioning of the International Finance Corporation (IFC).\(^4\) Further information can be obtained from the SAFEWORK department of the International Labour Office (ILO).\(^5\)

Box 2: The problem
In the UK there are on average 100 fatalities on construction sites each year. In the developing world, the risks associated with construction work are much greater. The ILO estimated the number of deaths from accidents at work in India in 2001 at 40,000, with an additional 262,000 dying from work-related diseases and 65,000 from dangerous substances. If construction is responsible for one sixth of the total, deaths among Indian construction workers can be estimated at over 60,000 each year.


Why this is an issue for procurement
The objective of improving OHS in all sectors of the economy is supported by international organisations. It is a key component of the IFC’s Performance Standard 2 (labour and Working Conditions)\(^6\), the Environmental and Social policy of the EBRD\(^7\), and is supported in principle by the MDBs\(^8\). OHS is also a core component of the ILO’s Decent Work agenda which is now incorporated into the United Nations’ Millennium Development Goals.\(^9\)

The ILO has for many years been encouraging the introduction of measures to improve OHS including improved policies and legislation,
wider availability of occupational health services, improved training and certification of skills, better recording and notification of accidents and the introduction of occupational safety and health management systems.

However the use of procurement as an instrument to promote improved OHS practices among suppliers has received little attention to date. While several guidelines on labour issues have recently been produced by MDBs, most offer only limited guidance on how to improve standards through procurement.

There are at least two reasons why OHS is a serious issue to consider during the procurement of construction services and works:

- Health and safety legislation in many countries, is increasingly holding clients responsible for the health and safety of the workforce on their construction projects.\(^\text{10}\) This responsibility may to some extent be passed on to consultants and to contractors and subcontractors. Hence the terms on which these services are procured are critical in ensuring that the responsibility is taken seriously by all parties and that the interests of the client are safeguarded.

- While it is often argued that the monitoring and enforcement of health and safety regulations is the responsibility of regulatory authorities, the large number and wide dispersion of construction sites means that it is practically impossible to inspect all. In this context the procurement process and the terms and conditions of the contract can be seen as complementary mechanisms for ensuring compliance with existing legislation and/or the terms and conditions of project finance.

Procurement procedures can further or they can inhibit good OHS practice. Currently the most common procedure for awarding construction contracts in developing countries is open competitive tender with tenders evaluated mainly on the basis of price.\(^\text{11}\) In order to win bids contractors must keep their costs down and labour is a major item of cost. The winning tender is therefore likely to be the one that does not provide safety equipment, welfare facilities and a safe working environment. In this context a low price for the client is secured at the expense of the health and safety of the workforce.

The briefing note will demonstrate that it is possible to preserve the benefits of competitive tendering while ensuring that adequate provision is made for the health, safety and welfare of the workforce.
PART II – GUIDANCE

The note is addressed primarily to clients of infrastructure projects, focusing on the actions that they need to take. It will also be of interest to financiers who may use it to influence clients, for example by making adoption of some or all of these procedures a condition of the loan. However, it is recognised that much of the advice will be invalid when financiers come into the process after the main contracts have been awarded.

The note provides guidance for actions to be taken to raise the profile of OHS at each stage of the project cycle as it arises under the traditional procurement system. Some adaptation will be required where very different procurement methods are being used.

The key stages for consideration of health and safety issues are:
- First steps before tender
- Selection of consultants
- Planning and design
- Prequalification of contractors
- Bidding documents
- Tender evaluation
- Contract agreement
- Monitoring and reporting
- Post project evaluation

First steps before tendering

From the initial inception of the project it is vital that the client develops and disseminates a clear policy for safeguarding the health and safety of the workers on their construction project(s). The policy should be widely publicised so that those on the demand side (procuring officers) and on the supply side (potential tenderers) fully understand the client’s priorities.

A second step is understanding the market. Before going out to tender, the client must be confident that the criteria set are realistic and can be met by the local market. “Buying responsibly requires a market that produces to responsible standards”12

A market analysis may be required. It should cover the OHS regulatory framework, the capacity of the main OHS agency and a baseline study of common OHS practices on the ground. It may be found that the capacity of consultants and contractors in the local market is insufficient to meet the standards required. This is one of the most difficult issues in developing countries where operators may have little or no understanding of health and safety risks and their mitigation. In this situation it may be necessary to set out very clear minimum standards to be met in the short term and accompany these with an intensive training programme.

The objective for the project(s), once defined, should be included in the subject matter of the tender – for example, “Construction of a public school/office/road built with special regard to health and safety”. In this way, OHS becomes part of the core objectives of the project.

Selection of consultants

Consultants may have a dual role, in planning and designing a project and in supervising its construction. In both capacities they act on behalf of the client and carry a major responsibility for ensuring that the project is designed, constructed, maintained and used with minimal risk to the health and safety of the workers and occupants. It is important for the client to remind potential consultants of their responsibility and to set out very clearly what will be expected of them, over and above normal duties, in the project. Clients must then carry out a rigorous assessment of potential consultants during the selection process to establish their ability to perform the specified duties.

A two stage procurement process for the selection of consultants is normal practice in developing countries. The following steps are proposed:
- The call for expressions of interest to state the client’s objectives for protecting health and safety throughout the design, construction, maintenance and use of the project
- The evaluation criteria for short-listing to include objective measures of the consultant’s:
- understanding of safety issues in relation to design and construction
- knowledge of national health and safety legislation and international standards
- competence in undertaking OHS risk assessments and preparing mitigation strategies
- record of performance on past projects
- Requests for full proposals to re-state the client’s objectives for protecting health and safety and require consultant’s submissions to show how they will meet these objectives in the planning, design and supervision of the project.
- Submissions to also include a proposal for OHS risk assessment and mitigation to be carried out at the design and planning stage and updated throughout the lifetime of the project and this issue to be given high priority in the criteria for evaluation.

Planning and design

“Many of the common health and safety problems encountered during construction and operation could be avoided if due consideration and effort were invested during the project brief and design phases.”13

Risks to the health and/or safety of workers and users of a facility may occur at any stage of the project cycle. Risks that can be detected as early as the planning stage include those linked to hazards associated with the location and the site (e.g. chemical, biological, physical, radiological hazards). At the design stage, risks to health and safety may arise from the specification of materials, technology of construction, as well as considerations relating to buildability, operation and maintenance.

To ensure that risks are addressed at the earliest possible stage the following steps are proposed:
- An OHS risk assessment is carried out on all projects at the planning and design stage
- The findings of the risk assessment are entered into a risk register
- The risk register is passed to the appointed contractor and updated throughout the project
- An OHS plan is developed to mitigate the risks with clear allocation of responsibilities
- The OHS plan is carried through to tender and issued with the tender documentation14

It is normal on large projects (particularly when funded by donors) to require an Environmental and Social Impact Assessment (ESIA) to be carried out at the planning stage to consider...
the potential environmental and social risks and impacts of the project. Risks to health and safety are key aspects of social risk, so the OHS risk assessment should be a major component of the ESIA. OHS risk mitigation measures then need to be incorporated into the Environmental and Social Action Plan and passed down the procurement chain in the form of clear contractual requirements to the contractor and subcontractors.15

Pre-qualification of contractors

As with the selection of consultants it is essential that the appointed contractors have a sound understanding of health and safety requirements, knowledge of national regulations and a commitment to continuous improvement. Experience has shown that once managers believe that all accidents are avoidable, huge improvements are possible.

Pre (or post) qualification is common practice in the appointment of contractors. But the usual criteria (and the only ones allowed by the MDBs) are the financial and technical capability of the contractor to perform the work. It is proposed that additional objective and verifiable criteria to test the knowledge, experience and commitment of contractors to improving OHS should be included as an aspect of technical capability. Suggested criteria include:

- The contractor's record on OHS issues (evidence can include reprimands, fines, compliance with reporting regulations, accident frequency rate, as well as examples of safe practices)
- Whether the contractor has the following:
  - a health and safety policy signed by the managing director
  - a policy on subcontracting to ensure that health and safety requirements will also be implemented, monitored and reported on by subcontractors
  - a full time, qualified health and safety officer
  - a health and safety management system in place
  - a core of permanent regular workers trained in health and safety
  - health and safety induction for new employees (including a means of informing them of their rights) and regular training for all workers

Contractors should be required to submit information on the above, with supporting evidence. Those not meeting the criteria should be excluded from tender lists.

Where local registers of contractors are kept, the criteria listed above can be included alongside other technical and financial criteria in the classification of contractors. But if it is to serve as a reliable guide to contractors’ capability and performance on OHS, the registers must be regularly updated.

Tender documents

The client’s objectives for health and safety should be explained in the invitation to tender, with specific requirements set out in detail in the Terms of Reference and explained verbally at pre-tender meetings. If failure to convince the client of their capacity to meet these requirements is to be considered as reason to reject a tender, this also should be clearly stated in the Terms of Reference.

Clients may require contractors to submit with their tenders:

- a site specific health and safety plan (including, where appropriate, a fall protection plan)
- an outline of the procedures to be adopted to ensure that health and safety requirements are met, not only by the main contractor but also by subcontractors
- a system and format for recording and reporting accidents, incidents and near misses
- the preparation and updating of a site specific health and safety plan including a supervision and reporting scheme (to include subcontractors)
- provision of temporary protective works (scaffolds, hoardings)
- hiring of a qualified safety officer
- provision of safety training to workers and supervisors
- time to attend meetings of the OHS safety committee
- provision of welfare facilities (water, food, housing)
- provision of personnel protective equipment
- medical examinations, first aid and emergency facilities

It is also possible (and may be considered preferable) to take the cost of meeting the client’s OHS requirements out of competition by pre-pricing the above items. This was the approach adopted in Hong Kong in 1996 under the ‘Pay for Safety’ scheme. The maximum payment for all safety items was set at approximately 2% of the estimated value of the contract on small projects and 1% on large projects. Items that are not delivered are not paid for.16

Although the price paid for safety measures may seem high to some clients, in the longer term it should be off-set by lower tender prices as contractors experience savings associated with better OHS. The main sources of savings are reduced insurance premiums, less disruption to work schedules and higher labour productivity as workers feel more secure. Benefits accruing to the financiers include lower credit risk, less likelihood of work stoppage and diminished risk to their reputation.
Box 3: Hong Kong Government clients ‘Pay for Safety’

The ‘Pay for Safety’ scheme evolved in 1996 from discussions between the Hong Kong Government Works Department and the Hong Kong Contractors Association. Under the scheme, the cost of safety is removed from competitive tendering by paying for safety measures based on an agreed schedule of items and prices. Costs of items such as personal protective equipment (PPE), temporary works, site meetings and safety committees are included as a fixed sum in the bill of quantities and paid for in interim valuations when the surveyor/engineer checks that they are provided.

The pay for safety scheme recognises that there is a cost associated with improved health and safety, but the cost is estimated to be less that the cost of lost time due to accidents. Research revealed that where safety costs are included in a tender and accepted by the client, the frequency of accidents involving loss of time is considerably reduced.


Tender evaluation

In evaluating tenders it is important to consider whether the contractor has made adequate allowance for the items included in the special section of the bill of quantities or alternative pricing mechanism. Particular attention should be paid (especially in multi-storey buildings) to the contractor’s plan and financial provision for the design and construction of temporary support systems (e.g. scaffolding).

World Bank rules require the contract to be offered to the ‘lowest evaluated tender’. But if the contractor’s provision for OHS fails to meet the client’s requirements, the tender could be rejected as invalid/non-conforming. This is likely to be more readily accepted if health and safety is included in the objectives of the project (as proposed above).

Where local procurement regulations permit, clients might consider reducing the priority given to price in tender evaluation and increasing that given to quality and work safety. A notable example comes from Singapore which in 2005 moved to a quality/cost (two envelope) system for evaluating contractors’ tenders, with the contractor’s record on health and safety included in the quality assessment (technical bid). This step was taken in order to tighten up on health and safety following a major accident (see Box 4).

Box 4: Recent procurement reforms in Singapore

Following a fatal construction accident, the government of Singapore recently introduced a number of measures in procurement procedures in order to improve work safety in public works projects.

Most radical is reducing the priority given to price in tender evaluation by the use of a price/quality method for the selection of contractors. Under the new arrangement, Government procuring entities must assign a weight to the quality proposal between 20% and 40%, with work safety measures accounting for not less than 10%. This compels contractors to specify work safety practices in their tender proposals.

In addition, work safety measures are included in the specification for public works projects and construction firms are ruled out if their work safety record is unsatisfactory.


Contract Documents

Many contracts make only vague and general reference to OHS. For example, the FIDIC harmonised contract used by the MDBs17, as well as many other standard forms of contract developed by national public procurement authorities, contain in their general conditions a statement to the effect that the contractor must take all ‘reasonable precautions’ to protect the health and safety of the workers. But without clear benchmarks and definitions in the specification as to what is ‘reasonable’, the statement tends to be ignored.

Other contracts, such as the NEC3 Contracts state in the conditions of contract that the Contractor must comply with the health and safety requirements stated in the Works Information18.

In developing countries, where there is often little understanding of the issue, standard national contracts should make reference to national OHS regulations. If these are not well known the main requirements should be referenced and where possible listed in the specific conditions of contract. Where countries do not yet have legislation governing health and safety, work safety measures would need to be included in the specification as an important contract document. While national regulations differ, some universally recognised requirements of good practice are set out in Box 5.

Every client should be conscious of their liabilities under the law. They must therefore include in the contract appropriate procedures to cover the liabilities, as well as to meet their own standards and the lender’s requirements. Such procedures should include a ‘safety management system’ to promote and monitor compliance with national OHS regulations and any other contract specific requirements, as well as a system for reporting against a set of indicators agreed for the purpose. The contract should spell out the responsibilities of the various parties on these issues.
Box 5: Some Universal Requirements of Good OHS Practice

- The workplace is subject to regular risk assessment
- Actions are taken to mitigate the major risks
- A trained and qualified accident prevention officer is appointed at the site with responsibility for maintaining safety
- Workers receive information, instructions and training with regard to the risks they may be exposed to
- Workers in particularly hazardous occupations are provided with regular health surveillance free of charge
- Appropriate Personal Protective Equipment (PPE) is provided to all workers free of charge
- Facilities are provided on site for first aid and emergency medical treatment in the event of an accident
- Accidents, incidents and near misses are recorded and reported to relevant authorities
- Any other requirement in national legislation on OHS is adhered to (for example appointment of worker OHS representatives & committees)

We have already argued that the cost of identified measures to safeguard OHS should be priced as a specific item in the contract documents and not paid for if not delivered. The contract may also make provision for additional penalties for poor OHS performance and/or the payment of bonuses for accident-free sites. An example is shown in Box 6.

Monitoring and reporting

Clients can use the contract procedures to monitor OHS contract provisions against Key Performance Indicators (KPIs) to ensure compliance and retain credibility. It is essential that monitoring and reporting systems are agreed in advance before work starts on site. Monitoring from within the project team is the most effective way of ensuring compliance with the H&S provisions of the contract. The reporting chain should be from subcontractor to main contractor, to consulting engineer, to client, to financier. All have a role to play.

Prime responsibility for managing activities and people on construction sites rests with the main contractor, who carries responsibility also for monitoring and reporting the activities of subcontractors. To help raise the profile of OHS it is proposed that a regular slot for OHS issues be put on the agenda of site meetings.

A particularly useful contribution to monitoring can be expected from the workforce, so long as they are made aware of their rights and a channel is available to them to complain if the rights are not respected. One simple way of informing workers of their entitlements is to post notices on the site in local languages spelling out what these are (for example, they are entitled to a safe and healthy workplace, safe drinking water, food and accommodation etc.). The contract can require that this is done. This measure is suggested in ILO Convention 94 and was successfully adopted in a project to raise labour standards in feeder road construction in Ghana.

Supervising engineers are the client’s representative and responsible for safeguarding the client against OHS risks on the project. Supervising engineer, even if not based on site, are frequent visitors and in a good position to observe site practices as well as to talk to the workers about their concerns (both essential tools in effective monitoring of OHS).

In addition to monitoring, supervising engineers have powers to enforce the OHS requirements of the contract. They can do this directly, for example by the exercise of ‘stop-work orders’.

Although enforcement is sometimes necessary, the provision of incentives for good performance (e.g. bonuses for accident free sites) and penalties for poor performance are more important tools for changing behaviour in the longer term. The most effective form of penalty is a poor rating which can affect future opportunities for work (as shown in Box 6).

Box 6: Incentives and sanctions to promote better OHS practice

The contract for a major tunnelling project in Hong Kong included provision for the contractor to be entitled to a bonus payment for a high score in a safety audit of the site. A low score meant that the report on the contractor’s performance for the respective quarter would automatically be graded ‘adverse’, which was a severe penalty as it might affect future tendering opportunities.

In Singapore, the sanctions that may be imposed on contractors for poor performance include downgrading to a lower class.

Sources:
Implementation of safety management system in deep water tunnels construction contracts under the harbour area treatment scheme, stage 1 project, Works digest no. 50, Government of Hong Kong, Works Branch, 2002
Post project evaluation
The record of OHS during construction should be an issue to be addressed in the final evaluation of the project. Many projects, especially those funded by donors, are currently subject to independent financial and technical audits. The technical audit is an appropriate place to report on the management of OHS risks during construction, while the financial audit should check expenditures on OHS measures. It is recommended that technical and financial audit reports contain a special section on OHS and that this information is fed back to the relevant authorities and stakeholders in the project.

While audits are generally conducted at the completion of a project, a case can be made for conducting technical audits at key stages during the construction process so as to uncover problems (e.g. inadequate foundations) that might be concealed by the time the project is completed. This would enable problems in the provision for OHS, or management of OHS, to be picked up in time to take corrective action.

Summary
Safe working practices must be:

- Included in environmental and social action plans
- As criteria in prequalification and in the evaluation of tenders for consultants and contractors
- Priced in a special section of the Bill of Quantities
- Set out in detail in the contract documents.

All parties to the contract have then to work together to monitor compliance. Performance can be assessed in evaluation reports and technical audits and rewarded through bonuses.
Briefing note

Endnotes


2 www.bwint.org


5 http://www.ilo.org/public/english/protection/safework/


8 However, health and safety and other labour issues are notably missing from World Bank social safeguards http://web.worldbank.org/WEBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTSAFEPOL/0,,menuPK:584441--pagePK:64168427--piPK:64168435--theSitePK:584435,00.html. The incorporation of appropriate clauses in the FIDIC MDB harmonized form of contract is as far as the Bank has gone in promoting improved OHS.

9 www.ilo.org/global/About_the_ILO/Mainpilars/WhatsDecentWork/lang--en/index.htm

10 See for example the Construction (Design and Management) Regulations of the UK, 2007: http://www.hse.gov.uk/construction/cdm.htm

11 According to World Bank rules, the contract is awarded to the lowest evaluated tender after consideration of some financial and technical factors designed to ensure the contractor is qualified to implement the work.

12 ICLEI (Local Government for Sustainability, European Secretariat) Respiro guide on socially responsible procurement of building construction works, www.respiro-project.eu


14 A good example of regulations adopting these principles are the UK’s Construction (Design and Management) Regulations 2007 see http://www.hse.gov.uk/construction/cdm.htm

15 See for example, IFC Guidance note 1 , social and environmental assessment and management systems, reference is http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/pol_GuidanceNote2007_1/$FILE/2007+Updated+Guidance+Note_1.pdf

16 The Hong Kong Construction Association, Extract from paper on construction site safety, 27 May 2003 www.pcicb.gov.hk/eng/meeting/download/P-pcipb-078-e.pdf


18 Clause 27 of the NEC3 Engineering and Construction Contract states ‘The Contractor acts in accordance with the health and safety requirements stated in the Works Information’. Thomas Telford Limited 2005

19 See, for example, Asian Development Bank (ADB) Core labour standards handbook2006 www.adb.org/Documents/Handbooks/Core-Labour-Standards/default.asp

20 http://www.ilo.org/ilolex/cgi-lex/convde.pl?C094

21 Ladbury,S., A.Cotton and M. Jennings, Implementing labour standards in construction: A sourcebook, WEDC, Loughborough University, 2003: http://wedc.lboro.ac.uk