
NYUMBA YA AKIBA sarl
Occupational
Health & Safety
Plan
AUGUST 2013

Occupational Health and Safety Plan

For

Nyumba Ya Akiba Cement Plant Project,

Bas Congo Province of Democratic Republic of Congo

Prepared by

Nyumba Ya Akiba sarl

in association with

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Table of Contents

List of Tables

1 Introduction

1.1 Background

NYUMBA YA AKIBA SARL (NYA), Concession RAFI, 1, Avenue Ngongo Lutete, Kinshasa - Combe, Democratic Republic of Congo (DRC), a joint venture between Lucky Cement Pakistan and Groupe Rawji DRC, proposes to construct a 3,000 tonnes per day clinker and 3,580 tonnes per day cement manufacturing facility, limestone quarry and associated facilities in Bas-Congo Province of DRC, using indigenous limestone and clay as raw materials and imported coal as fuel.

An Environmental Impact Assessment (EIA) for the project including the limestone quarry and the cement plant was conducted by an accredited local consultant (OEMS) in December 2010 in accordance with the Congolese legislation. This EIA was approved by the local authorities in 2011 and the quarry operational permit granted.

Subsequently, an Environmental and Social Impacts Assessment (ESIA) for lender approval was performed in December 2012 by the Pakistani consulting firm Ectech, covering the cement plant, limestone quarry and some associated facilities but not covering the entire area of influence of the Project. These and other gaps relative to the required assessment framework to meet the requirements of international funders were identified via an independent environmental and social due diligence (ESDD) by ERM for the account of the lenders. In particular, gaps were identified relating to ecosystem services, cultural heritage, hydrology and biodiversity, as well as the project footprint covered under the previous ESIA.

NYA has therefore appointed SRK Consulting (SRK) to prepare an updated ESIA and Environmental and Social Management Plan (ESMP) for the Nyumba Project (“the project”), in line with IFC Performance Standards (IFC) and other requirements, including those of the African Development Bank (AfDB). The purpose of SRK’s updated ESIA and ESMP is to fulfill the outstanding requirements identified in ERM’s due diligence report, as well as comment received from AfDB. In addition to meeting the DRC legal requirements, the ESIA and ESMP must also meet international good practice standards.

As part of the process of implementing the ESIA and ESMP, an occupational health and safety management system will need to be created. This will be in line with the environmental management system (EMS) of the ESIA and ESMP. This system will serve as a means for identifying hazards, exposures and risks as well as establishing and maintaining risk controls to manage potential impacts from project activities. This Occupational Health and Safety Plan (OHSP) is a living document and will need to be updated from time to time as the project evolves. For example, the OHSP will require refinement with specific instructions during the detailed engineering phase, with site-specific details to be incorporated, as appropriate.

The OHSP is one component of a series of management plans forming part of the ESIA and ESMP. Other management plans directly complementary to the OSHP forming part of the NYA ESIA and ESMP are as follows:

- The Community Health and Safety Plan (CHSP) (See Appendix 13);
- The Labor and Human Resources Plan (LHRP) (See Appendix 11);
- The Emergency Preparedness and Response Plan (EPRP) (See Appendix 16);
- The Sustainable Development Plan (SDP) (See Appendix 19); and

- The Communication Plan (still to be developed by NYA) to ensure that communication gaps across cultural boundaries within NYA are addressed to cover operational situations during all project phases.

2 Project description and context

The project site is located approximately 250 km west from Kinshasa and 100 km east from Matador in the vicinity of the N1 road to the north. The project will be developed on a green field site in the surrounding area of the Kansu Village, Sangallo territory, Bas Congo province of DRC, located approximately 30 km west from Impose city.

The cement plant will be supplemented by limestone and clay mining through mining concessions located approximately 1.5 km north from the cement plant site. The project is situated in a greenfield location, although it is understood that a number of other new cement production plants are expected to be developed in the greater vicinity of the NYA project (See ESIA and ESMP for further detail). For further detail on project design, please refer to the ESIA and ESMP.

Outside the scope of the current study, it is anticipated that once the NYA cement plant is operational, co-processing of suitable categories of waste from the NYA site could be undertaken. This would require a separate feasibility study. Should this proceed, co-processing will be undertaken in line with best available technology (BAT) and good international industry practice (GIIP). It will further be in accordance with multilateral agreements including the Basel and Stockholm United Nations Conventions.

3 Occupational Health and Safety Plan scope

This OHSP provides guidance for developing site specific practices and procedures which will be completed during project implementation. These apply to workers as follows:

- Health and Safety Directives;
- Corporate Policies;
- Standard Operating Procedures (SOPs) and Guidelines;
- Local Work instructions;
- Reference documents;
- Training materials; and
- Associated documentation including forms, checklists and drawings.

During construction and operations phases:

- The OHSP will be adhered to during the scope of normal operations;
- The OHSP will undergo annual review, updating, approval and signing off by designated management personnel;
- A record will be kept of significant changes made through annual review, and persons responsible for these changes; and
- The OHSP distribution list will provide information about personnel, departments and external roleplayers with responsibilities in terms of the plan. Aspects of the plan may, for security reasons, have restricted distribution.

4 Governance framework

4.1 DRC legal framework

The DRC Constitution was adopted by government on 18th February 2006. Article 53 of the Constitution states that:

- Every person has a right to a healthy environment which is favorable to his/her full development.
- The State must look after the protection of the environment and the health of the people.

Most of the laws providing guidance on OHS in DRC are contained within the DRC Labor Code (Loi N° 015/2002 of 16 October 2002) as well as within a list of decrees found in the document "*Modalités d'application*". The Code, which was first promulgated on 09 August 1967, has since been updated to accommodate recent in-country economic and social developments as well as to reflect international standards. The Code governs issues relating but not limited to training, contracts, remuneration, as well as working conditions (including leave, night shifts and equality).

Titles VII and VIII of the Labor Code set the modalities pertaining to OHS. According to Article 159, the importance of implementing and monitoring health and safety procedures in the workplace are to:

- Prevent accidents;
- Reduce or eliminate work-related illnesses;
- Create a healthy working environment;
- Reduce and eliminate exhaustion in the workplace;
- Ensure that the workplace is ergonomically friendly; and
- Limit the staff's exposure to community health risks.

Health and safety in the workplace falls within the duties of the Environmental and Social Manager. A Health and Safety committee must be established in each company, according to articles 167 to 169. All companies are subject to regular inspections by a Workplace Inspector, mandated to enforce OHS standards. Non-conformances are brought to the attention of the employer in writing and are assigned deadlines by which they need to have been addressed in terms of Articles 171 and 172. Failure to address the non-conformances may result in work stoppages commissioned by the Workplace Inspector.

The modalities around health are comprehensively covered in Title VIII (Articles 177 to 183) and include aspects relating to:

- The required number, qualifications and duties of the medical staff;
- The conditions and ailments covered/not covered by the employer; and
- The equipment needed to provide adequate medical care.

Other references relevant to health and safety in the DRC legal framework include the following:

- Title V of Annex IX of the Mining Regulations (Decree No. 038/2003 of 26 March 2003) sets out the contents of the ESPP and the Mitigation and Rehabilitation Plan (MRP), including the need to provide measures to address worker OHS;
- The Mining Code (Law No. 007/2002 of 11 July 2002) which briefly addresses OHS in the mining industry. Article 207 states that mining activities must adhere to specific health and safety regulations;

- Explosives Regulations, Order No. 43/266 of 08 Auqust 1955 on the manufacture, transportation, storage, use, sale and importation of explosives.

4.2 International Standards and Guidelines

4.2.1 United Nations

The United Nations (UN) has established the United Nations Guiding Principles on Business and Human Rights (UNGP) which in 2011 unanimously endorsed a global standard for preventing and addressing the risk of adverse impacts on human rights linked to business activity. UN agencies including the International Labor Organization (ILO), the International Occupational Safety and Health Information Centre (ILO-CIS) and the World Health Organization (WHO) work in partnership with the ILO. Key instruments of the ILO include the following:

- **Conventions**: The ILO has a wide array of Fundamental, Governance (Priority) and Technical ILO Conventions, many of which are applicable to global OHS, notably C155, C161, and C187. A further relevant Convention is that dealing with safety and health in mines (C176 Safety and Health in Mines Convention). While C155, C161, C187 and C176 are not ratified in DRC, as indicated in http://www.ilo.org/, their embodied principles may be implemented.
- **Codes of Practice**: The ILO Codes of Practice are non-binding and do not replace national law, but they provide guidance to entities including employers on protecting employees on specific hazards and health risks, including in the mining sector. They further provide guidance on the establishment of effective OHS management measures.
- **SafeWork**: The ILO runs the Programme on Safety and Health at Work and the Environment (SafeWork) which sets out to ensure, amongst other aspects preventive policies and programmes are developed to protect workers in hazardous occupations and sectors.
- **Global Strategy to Improve OHS**: In 2003 the ILO launched the Global Strategy to Improve OHS.

4.3 IFC Performance Standards, Equator Principles and EHS Guidelines

4.3.1 IFC Performance Standards

The IFC Performance Standards on Environmental and Social Sustainability [IFC Performance Standards (PS)], published in January 2012, are recognized as being the most comprehensive private sector standards available to international finance institutions. IFC PS's particularly relevant to the OHSP are PS2: Labor and Working Conditions, PS3 on Pollution Prevention and Abatement, and PS4: Community Health, Safety and Security.

PS2 recognizes that the pursuit of economic growth through employment creation and income generation should be accompanied by protection of the fundamental rights of workers. This PS is guided by international conventions and instruments, including those of the ILO and the UN. OHS-focused objectives of PS2 set out:

- To promote compliance with national employment and labor laws;
- To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the clients supply chain; and
- To promote safe and healthy working conditions, and the health of workers.

In terms of PS2, the client should provide a safe and healthy work environment, taking into account inherent risks and hazards. Steps should be taken to minimize accidents, injury and disease arising from, associated with or occurring in the course of work. In line with international best practice, the client should address the identification of hazards, preventative and protective measures, training, documentation and reporting as well as emergency response.

Relevant to PS3, the World Bank Group Environmental, Health, and Safety (EHS) Guidelines, are 'living documents' updated on a regular basis (outlined above). Reference to the EHS Guidelines by IFC clients is required under PS3. PS4 incorporates requirements:

- To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances; and
- To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.

4.3.2 Equator Principles

Development financing plays a major role in the enforcement of international sustainable development through the conditioning of loans, typically via the Equator Principles (EP's). The Principles require compliance with the International Finance Corporation (IFC) Performance Standards and the World Bank Group Environmental, Health and Safety (EHS) Guidelines (see below) when developing projects in non-high income Organization for Economic Co-operation and Development (OECD) countries. EP III is now also effective from 4 June 2013. Further to other ongoing principles, the EP III lays particular emphasis on energy management, transparency, as well as on human rights.

4.3.3 EHS Guidelines

The EHS General Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). The IFC uses the EHS Guidelines as a technical source of information during project appraisal activities, as described in the IFC's Environmental and Social Review Procedure. Further to the General EHS Guidelines, industry-specific guidelines which hare relevant the NYA project are the 2007 Mining EHS Guideline, the he 2007 EHS for Construction Materials Extraction Guideline, as well as the 2007 Cement and Lime industry EHS Guideline. The latter Guideline documents the following impacts as the key items being of particular relevance with respect to cement plant operations:

- Air pollution from exhaust gases, particulate matter, nitrous oxide (NO_x), sulfur dioxide (SO_2), greenhouse gas (GHG) emissions, as well as heavy metals and other potentially toxic emissions;
- Water pollution from industrial process wastewater, and other wastewater;
- Pollution from waste fuels and solid waste (note that alternate fuels fall outside of the current project scope)(See the WMP in Appendix 15 for information on planned waste management measures);
- Noise impacts from the crushing and grinding plants, as well as other activities associated with the project.

See Sections 8, 9, 13 and 14 for information on impacts, mitigation and monitoring measures.

The most significant OHS impacts occur during the operational phase of cement manufacturing, with the key risks noted in the 2007 Cement and Lime industry EHS Guideline being from:

- **Dust:** Exposure to fine particulates from dust-generating stages of cement manufacturing, notably from the quarry operation, raw material handling, and clinker/ cement grinding. Exposure to active (crystalline) silica dust (SiO_2) highlighted as a relevant potential hazard for cement manufacturing. Preventative measures are provided in the EHS Guidelines for the Cement and Lime Manufacturing Industry;
- **Heat:** Exposure to heat during operation and maintenance of kilns or other hot equipment, and through exothermic reactions in the lime-hydrating process. Preventative measures are provided in the EHS Guidelines for the Cement and Lime Manufacturing Industry;
- **Noise and vibrations:** Exhaust fans and grinding mills are the main sources of noise and vibrations in cement and lime plants. Preventative measures are provided in the General EHS Guidelines;
- **Physical hazards:** Injuries are typically related to slips, trips, and falls; contact with falling/ moving objects; and lifting/ over-exertion. Moving machinery is another major source of injury, as is maintenance of equipment, including crushers, mills, mill separators, fans, coolers, and belt conveyors. Preventative measures are provided in the General EHS Guidelines;
- **Radiation:** An X-ray station may be used to continuously monitor the raw material mix on the belt conveyor feeding the raw mill. Protective measures are provided in the General EHS Guidelines; and
- **Chemical hazards and other industrial hygiene issues:** Chromium may cause allergic contact dermatitis. The potential accidental contact with chemical hazards needs to be addressed through emergency procedures and equipment. Preventative measures are provided in the General EHS Guidelines and the EHS Guidelines for the Cement and Lime Manufacturing Industry.

4.3.4 Other requirements and standards

Other international requirements and standards relevant to OHS for the proposed NYA Project include:

- The 2012 United Nations Environment Programme (UNEP) Technical guidelines on the environmentally sound co-processing of hazardous wastes in cement kilns;
- Organization for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises;
- Voluntary Principles on Security and Human Rights developed by the International Council on Mining and Metals (ICMM);
- Extractive Industry Transparency Initiative (EITI) is a voluntary, global initiative aimed at transparency and accountability in which extractives sector payments made by companies and received by governments are publicly disclosed and reconciled;
- Cement Sustainability Initiative (CSI), a voluntary structure that promotes sustainability for the global cement industry including employee health and safety;
- The 2009 Cement Technology Roadmap;
- The 2006 Guidelines on Co-processing Waste Materials in Cement Production promotes alignment with the Basel and Stockholm Conventions, and incudes the need for social responsibility for the cement industry. The Guidelines contain legal, environmental, operational, occupational health and safety, as well as communication and transparency Principles;

- African Development Bank (AfDB) requirements documented *inter alia* in its 2003 Integrated Environmental and Social Impact Assessment Guidelines.
- The 2010 European Investment Bank (EIB) Environmental and Social Practices Handbook, European Investment Bank contains a tool for screening for occupational and community health and safety, and Guidance Note 4 on Occupational and Community Health and Safety . Initial screening by EIB should determine whether:
    - The working environment is as safe and hygienic as is reasonably practical;
    - The promoter is aware of relevant local legislation and international standards;
    - A formal structure for addressing health and safety issues is in place, with, a designated officer/safety representative and arrangements for consultations with the workforce;
    - A risk assessment has been undertaken and procedures for mitigating identified risks are established and widely publicised at the workplace;
    - training programme for workers is in place for health and safety procedures and how to use protective equipment;
    - Reporting measures are in place for recording accidents; and,
    - Adequate living accommodations and access to basic facilities is available where necessary.

4.4 NYA corporate OHS policy

While the NYA corporate policy is still evolving, that which has been developed to date is presented in Appendix 10. The sustainable development policy recognises that 'sustainability' is a cross-functional issue that does not reside only with one person and that it should be integrated into the governance and decision making processes of the organization. Thus the "Sustainable Development" Manager responsibilities encompass the environment, communities and stakeholder engagement, health and safety, and the related provisions of labour (such as human rights, equal opportunity,child labour and skills development). Dedicated policies related to OHS will be developed and implemented by NYA prior to the commencement of construction. However, NYA has committed to the following broad principles in recognition of the nature of the cement plant development and potential impacts on the environment and communities surrounding the operations:

- Impacts will be avoided and mitigated as far as practicable, and benefits enhanced through best available technology (BAT) for the cement industry, good international industry practice (GIIP), as well as scientifically founded risk management strategies;
- Support will be provided to sustainable development of the surrounding area and communities (See the Sustainable Development Plan (SDP) provided in Appendix 19);
- Continuous improvement of environmental performance will be implemented and environmental audits will be regularly conducted for review of compliance, management systems and practices measured against environmentally sound benchmarks;
- Ongoing engagement with stakeholders including governmental agencies, surrounding communities and organisations will be conducted to improve environmental performance;
- NYA will abide by the International Council on Mining and Metals (ICMM) Sustainable Development Framework comprising 10 sustainable development principles, including public

reporting on performance with independent assurance and verification of adherence to the principles;

- Regular (at least annual) auditing will be undertaken to cover all aspects of environmental management and project implementation to identify and manage risks from its operations;
- NYA will provide a safe working environment for its employees and contractors, and will contribute to a healthy social/economic environment for communities surrounding the NYA project. Risk of exposure to occupational health hazards will be carried through implementation GIIP;
- An operational EPRP for the protection of workers, the community and the environment will be maintained for the project, and response scenarios and emergency drills will be developed and implemented in coordination with local authorities; and
- Fatality prevention will be implemented based on GIIP. Continuous improvement will be implemented through identification of significant risks including from potentially fatal events (PFE).

Further detail on organizational structure and how this relates to OHS is provided in Section 5 below.

5 Responsibilities for occupational health and safety

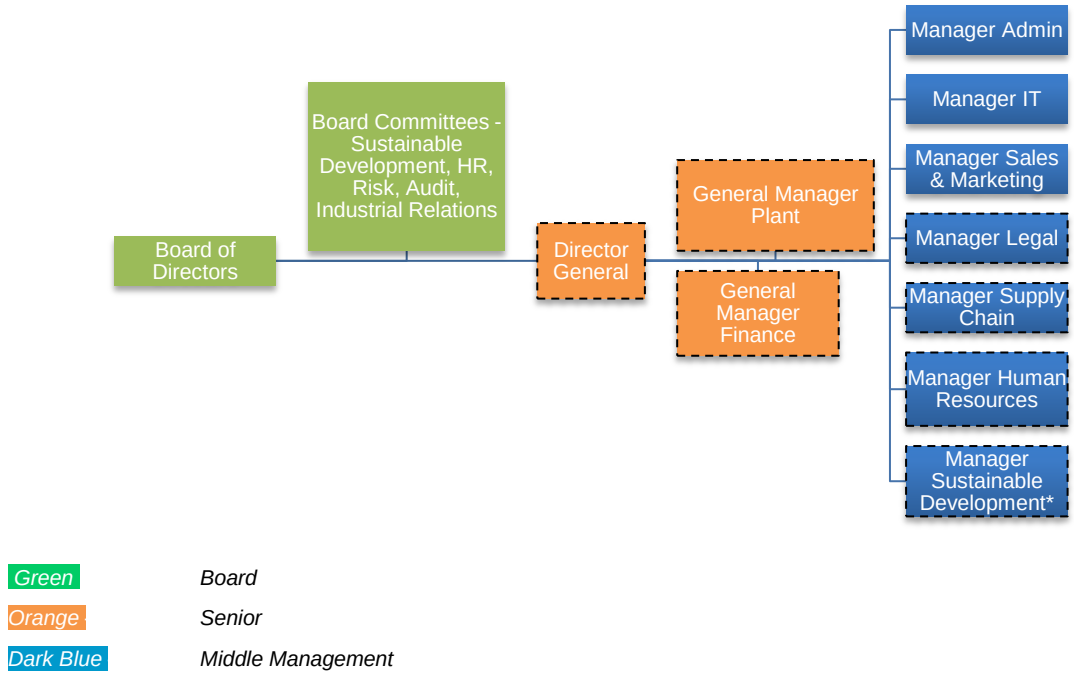

Figure 5-1: Organizational structure for NYA management

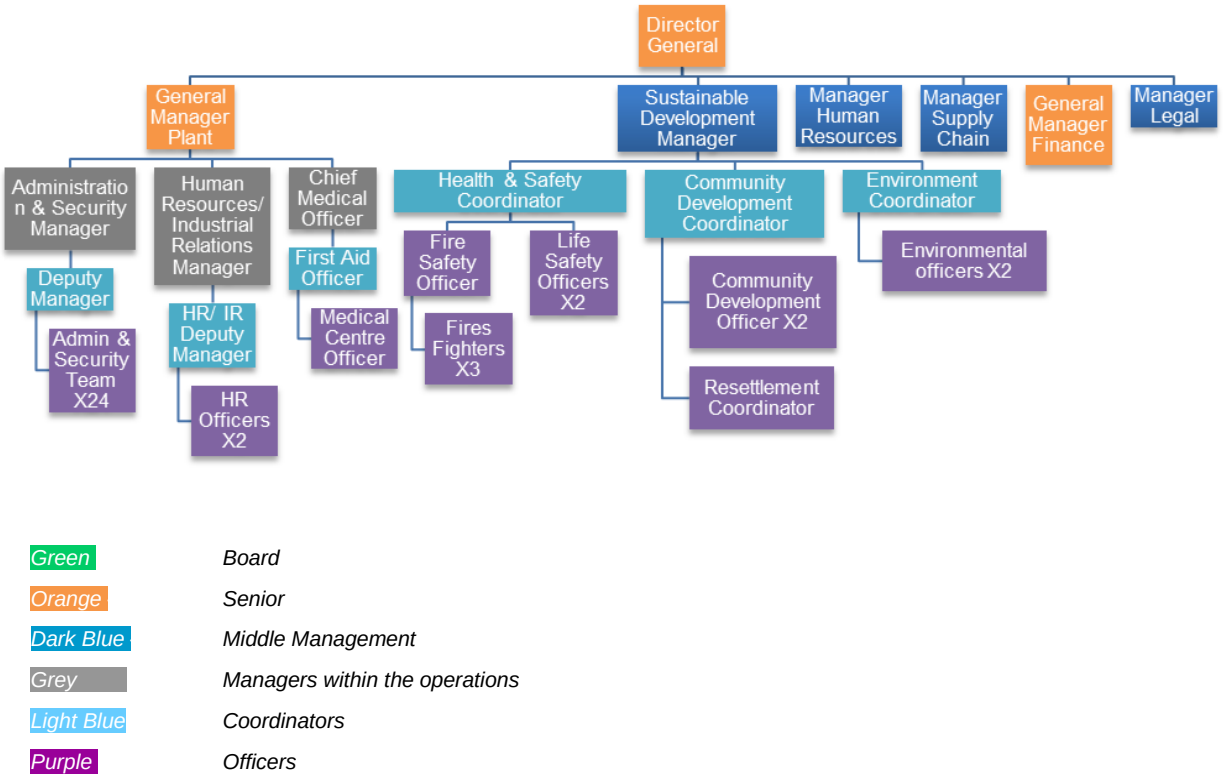

Figure 5-2: Organizational structure for NYA showing staff involved in sustainability management

Roles. reporting lines and responsibilities for OHS will include:

- **Director General, reporting to the Board of Directors:** Overarching responsibility for safety of personnel, resourcing of OHS and ensuring accountability of individuals with responsibilities.
- **Sustainable Development Manager, reporting directly to the Director General, indirectly to the Board Committee on SD, as well as the General Manager Plant:** In charge of providing technical expertise for effective management of OHS; develop, maintain and review the Occupational Health and Safety Action Plan for the NYA Project; lead and facilitate Joint Health and Safety Committee meetings; determine and manage drug and alcohol testing procedures; conduct safety inspections and audits; ensure safety drills are developed, implemented and updated; ensure plans and qualified personnel are in place for response to incidents; determine facilities, personnel and equipment required for medical services, fire and rescue; ensure regular orientation and safety training provided to personnel; prepare safety reports.
- **Health and Safety Coordinator, reporting to the Sustainable Development Manager:** Implementation of health and safety policies, procedures, and management plans, notably the workplace health and safety plan; review and analysis of monitoring results and preparation of reports to management and stakeholders; planning of and carrying out safety training programs for employees and contractors; obtaining and maintaining all necessary safety permits; management of the safety related components of the grievance mechanism.
- **Safety Officers, reporting to the Health and Safety Coordinator:** Inspections/audits of safety requirements by employees and sub-contractors; sampling and data capture in accordance with safety monitoring program and analysis of results; assistance with the preparation of reporting and permit applications.

- **Site Managers, reporting to the Safety Officers:** Responsible for health and safety of employees, day-to-day operations, attainment of zero incidents, fatalities and job-related illness, as well as identification of unsafe situations. The Site Managers will further ensure that the OHS management system is in place as a framework for auditing against, will ensure procedures for updating of policy are in place and will ensure management representation on a Joint Health and Safety Committee.
- **Supervisors, reporting to the Site Managers:** Responsible for day-to-day safety at the key facilities such as the cement plant, quarry and waste site and individuals they supervise, including attendance of safety meetings and awareness and implementation of rules, as well as representation on the Joint Health and Safety Committee; reinforcement of safe behaviours through positive reinforcement and reprimands for unsafe behaviours; elimination of unsafe situations.
- **Employees, reporting to the Supervisors:** Safe behaviour; and implementation of rules; taking ownership of zero incidents approach; control of actions; provision of feedback and reporting on safety and near misses; attendance off training and meetings; completion of job hazard identification for work permits issued; participation in incident and accident investigations; and ensure employee representation on the Joint Health and Safety Committee.
- **Visitors:** Attendance of visitor orientation prior to entering site; know what to do in an emergency; wear personal protective equipment (PPE); be escorted by an employee.
- **Sub-contractors and contractors, reporting to the Supervisors with respect to OHS matters:** Attendance of visitor orientation prior to entering site; adhere to Safety Contractor Manual; have insurance requirements in place prior to commencement where feasible; develop a site-specific health and safety plan to become part of contract, to be regularly reviewed; attend safety meetings.

6 NYA Occupational Health and Safety Action Plan

The Occupational Health and Safety Action Plan for the NYA Project is presented in Table 6-1 below. This plan identifies key responsibilities and provides indicators of progress on an aspect of OHS, as well as timeframes for implementation to ensure effective implementation of OHS for the Project. Key elements of the Action Plan include:

- **Standard operating procedures (SOP) and guidelines:** SOPs identify specific, documented tasks or actions, which provide sequential detailed administrative instructions for implementing Corporate Directives and Policies. Guidelines identify specific, documented standards, which provide detailed administrative instructions to the delegated authority with the limits to which they are entitled to act on behalf of the corporation for implementing Corporate Directives. SOPs and Guidelines will be approved and issued by the Sustainable Development Manager. They will have mandatory applications to each employee, facility and operation of the NYA Project.
- **Local work instructions:** Local work instructions (LWIs) will identify specific, documented tasks or actions, and will provide sequential detailed administrative instructions for implementing SOPs and Guidelines with the objective of ensuring conformance and compliance. LWIs will be approved and issued by the Health and Safety Coordinator, and will have mandatory applications to each employee, facility and operation of the proposed NYA Project.
- **Reference documents/training materials**: Reference documents, training materials and software systems will provide supporting information for the review by employees on specific issues of concern to the company and will be designed to assist in implementing the company Policy, Directives, SOPs and Guidelines and complying with the law. Training materials will be provided to employees to promote understanding and conformance with Policies, Directives, Procedures, Guidelines and compliance with the law. Reference documents and training materials will be approved and issued by the Sustainable Development Manager.

Table 6-1: NYA Occupational Health and Safety Action Plan

Issue	Action	Progress indicators	Timing
Development of OHS Policy and Guidelines			
OHS management system	NYA to formally establish and adopt OHS management system standard based on the ISO Management System Standard format, to comply with: • DRC labor Code • DRC Mining Code • IFC PSs • World Bank/IFC: Environmental, Health, and Safety (EHS) Guidelines - General EHS Guidelines • World Bank/IFC: Environmental, Health, and Safety Guidelines – Mining • African Development Bank and other lender requirements	OHS management system in place	Prior to construction
OHS policy	NYA OHS Policy posted on corporate website and available in workplace	NYA OHS Policy available on website and on workplace noticeboards	Construction, operation, decommissioning/ closure
OHS directives	NYA Corporate Directives will define the company standard and specific, documented tasks and actions that must be completed to implement company policy or comply with the law. Directives will cover: • Health and Safety Management • Workplace Health and Safety • Emergency Preparedness and Response • Occupational Health and Safety • Zero tolerance rules	Corporate directives in place	Prior to construction
OHS management system documents	NYA will develop/ update OHS management system documents to comply with ISO standards covering: • Framework • Audit • Document Control • Policy	OHS management system in place	Prior to construction

Issue	Action	Progress indicators	Timing
	• Compliance • Organizational structures • Communication and reporting • Records management • Monitoring and review		
Management System Implementation			
Hazard Identification	NYA to carry out hazard identification, risk assessment and determining controls	Assessment complete and document available as part of the overall hazard registry	Prior to commencement of operation, with regular updates thereafter
Legal and other requirements	NYA to carry out a detailed legal review of OHS requirements relating to the DRC Labor Code	Legal review available	Prior to construction
Objectives and program(s)	NYA to define and prioritize OHS program objectives	Objectives and programs available	Prior to construction
Resources, roles, responsibility, accountability and authority	NYA to: • Develop/ update a standard outlining the roles and responsibilities for all levels of management as it relates to OHS • Communicate OHS roles and responsibilities to all affected employees • Ensure documented OHS roles and responsibilities are included in basic NYA safety awareness training.	• Standard on resources, roles, responsibility, accountability and authority available • Records of communications and meeting notes • Training materials	Prior to construction, ongoing
Competence, training and awareness	NYA to conduct basic safety awareness training that identifies the importance of health and safety to all employees and their roles, responsibilities and accountabilities.	• Training modules available • Attendance registers	Prior to construction, ongoing
Communication, participation and consultation	NYA to ensure: • Clear terms of reference for combined OHS/ H&S Committee structure • Regular OHS/ H&S Committee Meetings required in terms of the DRC legislation • NYA H&S bulletin boards to be regularly updated with relevant information • Implementation of the OHS communication standard	• Attendance registers and minutes of meetings • Up-to-date OHS/ H&S bulletin boards	Prior to construction, ongoing

Issue	Action	Progress indicators	Timing
Chemical, biological and radiological hazards	NYA to: • Develop a SOP describing requirements and systems necessary for the classification and labeling of hazardous substances and dangerous goods to ensure their safe use, storage, transportation and disposal • Develop a documented list of hazardous materials stored, handled or used at the NYA Project • Implement system with hazard symbols and content name • Develop and implement management system for chemical safety data sheets • Develop training program for chemical, biological and radiological hazards	• SOP on chemical, biological and radiological hazards in place • List of hazardous materials handles, stored or used • Labelling system in place • Chemical safety data sheets • Training materials for chemical, biological and radiological hazards available • Course attendance registers	Prior to commencement of operation; ongoing
Working in confined spaces	NYA to: • Develop a SOP that ensures the safety of all personnel when working in situations where they enter confined spaces • Document the confined spaces for the NYA operation with identifying number • Develop detailed standards for identified confined spaces • Develop standard NYA confined space entry permit • Develop NYA training program on confined space entry	• SOP on working in confined spaces in place • List of confined spaces available • Standards for identified confined spaces in place • Training manual on Confined Spaces available • Training attendance registers	Prior to commencement of operation; ongoing
Safe work practices	NYA to develop: • A SOP that identifies standards for a safe workplace and establishes requirements that will ensure Contractors working at the NYA site conduct their work in a safe manner • A contractor safety manual on safe work practices • A Non-Conformance Report to document and monitor contractor EHS compliance	• SOP on safe work practices in place • Training manual available • Training attendance registers • Template for reporting non-conformances in place	Prior to commencement of operation; ongoing
Emergency and fire management	In alignment with the EPRP, a SOP is to be developed that establishes the minimum requirements for emergency and fire management and describes the procedures to be followed in planning and organizing for fire emergencies.	• SOP on emergency and fire management in place • Inspection reports • Training attendance registers	Prior to commencement of operation; ongoing

Issue	Action	Progress indicators	Timing
Emergency medical management	NYA to: • Develop a SOP describing the minimum standards for the NYA Project on emergency medical management and facilities • Install first aid kits • Carry out monthly inspections of emergency medical and first aid kits • Purchase and make available personal protective equipment (PPE) for medical personnel for high risk biological exposure • Develop basic standards on biological safety for employees covering medical and emergencies • Develop list of minimum emergency medical equipment stock level for all NYA facilities • Ensure all emergency medical SOS containers are made operational	• SOP on emergency medical management in place • Records of inspections • List of minimum emergency equipment • Basic standards in place on biological safety	Prior to commencement of operation; ongoing
Explosive materials for blasting	NYA to: • Develop a SOP that sets minimum safety standards for all personnel, integrity of the property, equipment and the environment with regard to the safe use, storage and handling of explosive blasting materials • Establish a standard for certification of blasters	• SOP on explosive materials for blasting in place • Standard for certification of blasters in place	Prior to commencement of operation
Fatality and serious Injury reporting	NYA to develop a SOP that describes the process to be followed in the event of a fatality or serious injury of an employee	• SOP on fatality and serious Injury reporting in place	Prior to commencement of operation
Hazard communication and PPE	NYA to: • Develop a SOP that describes requirements and procedures necessary to communicate and control workplace hazards and set out the level of PPE requirement for operations • Identify high safety risk behaviours and document these in a in a zero tolerance guideline • Document standard for signage to communicate hazardous areas • Develop standard for minimum PPE for different areas of the operation including the quarry, crushing plant, cement plant and dispatch facility • Develop standard for purchasing PPE and maintenance of PPE stock levels in store	• SOP for hazard communication and PPE in place • Guideline on safety risk behaviours available • Zero tolerance guideline available • Signage standard available • Minimum PPE standard available • Standard on PPE stock levels in place	Prior to commencement of operation; ongoing

Issue	Action	Progress indicators	Timing
Hot work	NYA to: • Develop a SOP that defines procedures for conducting hot work that may involve open flames, sparks or potential ignition sources • Implement a hot work permit system	• SOP for hot work available • Hot work permit system in place	Prior to commencement of operation; ongoing
Injury, disease and dangerous occurrence reporting	NYA to: • Develop a SOP defining responsibilities and procedure for reporting all work place health and safety events that result in injury, diseases or dangerous occurrence. This will include the process for investigation and corrective action to ensure prevention and continuous improvement • Develop and implement a reporting standard on injury, disease and dangerous occurrences	• SOP on injury, disease and dangerous occurrence in place • Reporting standard on injury, diseases and dangerous occurrences in place	Prior to commencement of operation; ongoing
Isolation of hazardous energy	NYA to: • Develop a SOP to ensure the safety of all personnel when required to control hazardous energy associated with potentially harmful machines, equipment, or processes • Develop training programs for hazardous energy lockout • Identify a standard for energy isolation equipment (locks & tags) and implement • Carry out training all affected employees in isolation of hazardous energy (lockout) • Ensure required standard locks and tags are retained in a minimum stocking level at site • Ensure all equipment is designed and installed to be 'lockable'	• SOP for Isolation of Hazardous Energy in place • Training materials on hazardous energy lockout available • Attendance registers • Inspection records	Prior to commencement of operation; ongoing
Mechanical and electrical equipment safety	NYA to: • Develop a SOP that identifies minimum standards to eliminate or minimize the risk of fatalities, injuries and incidents resulting from the activities of employees and their interaction with electrical and mechanical equipment • Develop a technical guideline for safety identification of piping and equipment specifying piping colour, content and flow direction • Ensure all affected employees receive instruction on the Guideline • Ensure stores retains all necessary piping labelling signs	• SOP for mechanical and electrical equipment safety in place • Technical guideline for safety identification of piping and equipment available • Attendance registers • Inspection records • Training manuals prepared	Prior to commencement of operation; ongoing

Issue	Action	Progress indicators	Timing
Mobile equipment	NYA to: • Develop a SOP describing basic requirements for vehicle accident prevention to include the broader risks of community and site transportation safety • Carry out regular training • Develop a pre-trip inspection form for plant vehicles • Develop documented standard which identified a list of actual and potential controls for traffic safety issued identified by a traffic safety risk assessment	• SOP for mobile equipment in place • Attendance registers • Pre-trip inspection records • Training undertaken and certificates obtained	Prior to commencement of operation; ongoing
Surface mining safety	NYA to: • Develop a SOP on minimum standards to eliminate or minimize the risk of fatalities, injuries and incidents resulting from the surface activities of mining, including: falls of ground; collapse in surface operations; emergency preparedness; refuge and response; air quality; worksite preparation; and design and engineering standards. It will further specify all slopes including pits, water storage facilities, stockpiles, natural and modified slopes, trenches, borrow pits, benches and quarries • Carry out training of NYA rescue team	• SOP for surface mining safety in place • Attendance registers • Training manual prepared	Prior to commencement of operation; ongoing
Working at heights	NYA to: • Develop a SOP that sets out the minimum standards to ensure the safety of all personnel when working at heights • Develop PPE inspection standards for all fall protection equipment	• SOP for working at heights in place • Standards for fall protection equipment in place	Prior to commencement of operation; ongoing
Workplace health and safety	NYA to: • Develop SOP on requirements, terms of reference and responsibilities for employees and persons exercising their duties on workplace health and safety committees, workplace inspections, and refusal of work	• SOP for workplace health and safety in place	Prior to commencement of operation; ongoing
Industrial hygiene and occupational health	NYA to: • Develop SOP on industrial hygiene and occupational health • Install a management system for the development and retention of employee occupational medical records and a SOP for control of records	• SOP for industrial hygiene and occupational health in place • Management system for medical records in place • Risk assessment documented	Prior to commencement of operation

Issue	Action	Progress indicators	Timing
Cranes, rigging hoisting and lifting devices	NYA to: • Develop a SOP dealing with cranes, rigging, hoisting and lifting devices • Develop standard pre-trip inspection record for cranes, rigging, hoisting and lifting devices • Develop training programs for cranes rigging hoisting and lifting devices	• SOP for cranes, rigging hoisting and lifting devices in place • Pre-trip inspection records • Attendance registers •	Prior to commencement of operation
Monitoring and review			
Performance measurement and monitoring	NYA to: • Develop a performance measurement and monitoring OHS report format • Develop a standard document for the reporting and recording of hazardous occurrences (incidents and accidents) • Develop and implement a hard copy tracking system to verify that corrective actions identified within hazardous occurrence reports are being completed.	• Performance report format available • Report template on incidents and accidents prepared • Hard copy tracking system in place	Prior to commencement of construction
Evaluation of compliance – internal audit	The NYA Board of Directors will require comprehensive audits to ensure the safety management system is effective, weaknesses are identified, and resources are applied to achieve the policy objectives.	• Internal audits reports available	Ongoing
Evaluation of compliance – external audit	NYA to: • Engage external auditors to conduct compliance, conformance and verification audits of the NYA Project • Issue corrective/ preventive action plans for both conformance and compliance findings, and track and document completion and closure of audit findings	• External audit reports available • Corrective/preventive action plans available	Ongoing

7 General safety rules

The general safety rules and regulations of the facility will be communicated to workers during the site orientation.

7.1 Contractor safety

Ensure contractors are aware of the safety rules and regulations set out by the company, (to be included as part of the contract) and that they abide by these rules.

7.2 Drugs and alcohol

- Determine if alcohol and drug testing will be done on site.
- Implement drug and alcohol testing for the following reasons:
    - Pre-hire requisite.
    - Post-incident/accident investigation.
    - Reasonable suspicion.
- Use trained individuals to conduct drug and alcohol testing.
- Verify drug test results using an independent lab.
- Define what support will be given to employees deemed to have a substance abuse problem.

7.3 Enforcement

The health and safety policy will be enforced by the following personnel:

- Site management and supervisors, assisted by site safety coordinators, will enforce the safety rules and regulations.
- The General Manager Operations will enforce the rules and regulations from a disciplinary perspective if infractions continue.

8 General safety procedures

General safety procedures will be prescribed for specific types of potential hazards associated with day-to-day operation. The procedures will address ways to eliminate or control any hazard associated with the following items:

- **Slips, trips and falls:** Determine ways to prevent slips, trips and falls.
- **Stairways and walkways:** Determine the most suitable material for construction of stairways and walkways, and define the height of handrails on stairs and walkways.
- **Excavations – trenching and shoring:** Determine the local governmental regulations for excavations, trenching and shoring, and develop a code of practice for excavations.
- **Working around heavy equipment:** Maintain awareness of location of heavy equipment, establish rights-of-way rules for heavy equipment on haul roads, and develop communication procedures to communicate with operators of heavy equipment.
- **Machinery, mechanized and hand equipment safety:** Ensure all required safety guards are in place and maintained, develop machine-specific safety rules and procedures, define the safety

procedures for equipment such as abrasive wheel grinders and saws, scaffolding, drills and rotating equipment.

- **Heavy lifting:** Determine ways to eliminate or control heavy lifting by the use of powered mechanical devices and educate workers on safe lifting.
- **Electric safety:** Define the training requirements for personnel who will be working with electrical equipment and maintenance/ repair procedures.
- **Lockout/ tagout/ tryout (LOTOTO) procedures:** Define the criteria and method for LOTOTO procedures, scope and extent of what needs to be locked out for each piece of electrical equipment, and further determine the personnel who can lock out equipment and the training required.
- **Sanitation and waste management:** Determine the local regulations on sanitation, as well as defining items for different waste streams and means of disposal (See the Waste Management Plan in Appendix 15).
- **Eating areas:** Determine suitable areas for eating and cleaning of those areas.
- **Lighting and illumination:** Determine the lighting requirements for the facility areas.
- **Noise:** Determine the areas where noise is of concern and noise monitoring to be instituted on site.
- **Confined spaces:** Develop training requirements for personnel working in conjunction with confined spaces and a process for identifying all confined spaces.
- **Working alone/ isolated workers:** Develop working alone procedures for the facility.
- **Welding/ hot work:** Determine if there are areas in the facility where hot work can be done without the risk of fire or explosion due to the process of the facility, hot work restricted areas and develop procedures for safe hot work on the hot work permit.
- **Storage and handling of hazardous materials:** Determine the proper storage facilities for hazardous materials and training required for storage and handling of hazardous materials.
- **Fuelling and flammable materials:** Develop protocols for fuelling equipment, areas where flammable material can be stored, as well as procedures for dealing with a flammable liquid spill.
- **Compressed air and gases:** Define the areas where compressed air and gases can be stored and transportation procedures for moving compressed air or gases.
- **Biological hazards:** Define the areas where biological hazards can be stored and proper disposal procedures for biological hazards.
- **Transportation of dangerous goods:** Define the personnel who will be involved in the transportation of dangerous goods and training requirements for those personnel.
- **Safe operation of vehicles:** Determine the personnel who will be operating vehicles on site and the training required to operate those vehicles, as well as the areas where vehicles can be operated safely.
- **Fire prevention and protection:** Define the areas where fire protection is required; determine the methods of fire protection required and define programs to teach personnel about fire prevention.
- **Blasting and explosives:** Define the measures of the safe transportation, storage, use of explosives, as well as measures for safe disposal.

- **Working in high temperatures:** Identify the areas of the facility where high temperatures are present; define precautionary methods when working in areas of elevated temperature, and define preventative measures or PPE to be used to reduce the heat in elevated temperature areas.

9 Personal protective equipment

Personal protective equipment (PPE) requirements will be described for specific types of protection. Employees will receive proper training before receiving their PPE and for respiratory equipment employees will be fit tested before receiving equipment.

- **Hard Hats:** All hard hats will conform to good practice standards. Hard hats will be worn at all times when working in operational areas.
- **Steel-Toed Footwear:** All safety footwear will be steel or suitable material for toe and shank protection. Safety footwear when used in the operational areas will be at least ankle high.
- **Clothing:** All clothing will afford the worker the most possible protection required for the specific jobs. Clothing is to be in good condition with no rips or tears and no contamination from chemicals or oils. If this is the case, clothes must be replaced or laundered.
- **Gloves:** Gloves must be made of a suitable material that will protect the worker and not react with chemicals used for the particular task. Welders will wear welding gloves. Gloves must close-fitting.
- **Eye and Face Protection:** Eye protection will be worn at all times in areas deemed eye injury hazard areas. Safety glasses will conform to local government standards and will be worn at all times when working in the operational area. Face protection will be worn when working with or around machinery/ tools that produce flying objects. Proper eye protection will be worn in conjunction with the face protection.
- **Hearing Protection:** There will be an audiometric program in place for noise-exposed workers. Hearing protection will be worn in areas where the decibel reading is 85 or greater, or if local government standards are lower than 85 A-weighted decibels. Hearing protection will consist of one or more of the follow methods of protection:
    - Hard hat-mounted ear muffs
    - Moulded ear plugs
    - Roll up foam ear plugs
- **Fall Protection:** A fall protection policy and Code of Practice will be in place and is required should there be any possibility of a worker having a fall over three meters, or less if there is a possible chance of severe injury. Regular training will be conducted in fall protection and there will be rescue procedures in place to aide a worker if they have taken a fall and are suspended in the harness. Fixed fall protection systems will be installed where appropriate.
- **Respiratory Protection:** Respiratory protection will be selected depending on what is deemed necessary for the facility. A program will be designed and implemented to ensure that workers are protected. The program will include quantitative and qualitative fit testing and medical evaluations will be conducted before the employee uses the equipment.

10 NYA Project audit program

An on-site and verification audit program will be put in place to define scheduling, conducting, and documenting of internal and external H&S audits. Audit findings will be classified in accordance with the corporate rating procedure. The Sustainable Development Manager will review final review audit findings and ensure that all non-conformances are dealt with expeditiously. Systems will be put in place to:

- Avoid recurrence of non-conformances;
- Ensure timeous actions;
- Perform follow ups with site management to ensure that non-conformance are corrected and recommendations are implemented within required timeframes;
- Report any areas of non-compliance to corrective actions to the General Manager Plant, for potential escalation to the Director General; and
- Ensure methodical record-keeping.

11 Documents to consult

AfDB (2000). Procedures En Matiere D'etude Environnementale Relatives Aux Operations Du Secteur Prive De La Banque Africaine De Developpement. African Development Bank, May, 2000.

AfDB (2003). Integrated Environmental and Social Impact Assessment Guidelines. African Development Bank, October 2003.

AfDB (2004). African Development Bank Group's Policy on the Environment, February 2004.

AfDB (2008) Revised Policy Guidelines and Procedures for Emergency Relief Assistance, December 2008.

Basel Convention on the Control of Transboundary Movements of Hazardous Wastes.

CSI (undated). Cement Sustainability Imitative under the auspices of the World Business Council for Sustainable Development. http://www.cement.ca/en/Commited-to-Sustainability.html . Date accessed: 28 June 2013.

Department of Labour (Undated). The South African Labour Guide. http://www.labourguide.co.za/health-and-safety/. Date accessed 14/07/2013.

EIB (2010). Environmental and Social Practices Handbook, European Investment Bank. Screening for Occupational and Community Health and Safety.

GTZ-Holcim Public Private Partnership (2006). Guidelines on co-processing Waste Materials in Cement Production. Produced jointly by Holcim Group Support Ltd and Duetsche Gesellschaft fur Technische Zusammenarbeit (GTZ).

IEA (2009). Energy Technology Transistions for Industry. www.iea.org/roadmaps/cement.asp.

IFC (2007). World Bank Group EHS Guideline for Cement and Lime Manufacturing**.** Published by the International Finance Corporation. 30 April, 2007.

IFC (2007). World Bank Group EHS Guideline for Construction Materials Extraction**.** Published by the International Finance Corporation. 30 April, 2007.

IFC (2007). World Bank Group General EHS Guidelines. Published by the International Finance Corporation. 30 April, 2007.

IFC (2007). World Bank Group Mining EHS Guidelines. Published by the International Finance Corporation. 10 December, 2007.

IFC (2012). Environmental and Social Review. Procedures Manual. Environment, Social and Governance Department. Version 8. 31 May, 2012.

IFC (2012). Performance Standards on Environmental and Social Sustainability, including the Guidance Notes. Published by the International Finance Corporation, 1 January, 2012.

ILO (2001). Guidelines on occupational safety and health management system: ILO-OSH 2001. Published by the International Labor Office, International Labour Organization, Geneva, 2001.

ILO (2003). Global Strategy to Improve OHS. Published by the International Labor Office, International Labour Organization, Geneva, 2003.

ILO (ongoing). Programme on Safety and Health at Work and the Environment (SafeWork).

ILO (2008). Fundamental Principles of Occupational Health and Safety. Second edition. Published by the International Labor Office, International Labour Organization, Geneva, 2008. Incorporates:

- A Checklist for Employers Writing a Safety Policy Statement

- A Checklist for Planning and Implementing a Workplace Policy on HIV/AIDS
- Hazard Categories Defined in the Globally Harmonized System for the Classification and Labelling of Chemicals (GHS)

ILO Conventions relevant to OHS (but not ratified in DRC):

- Protection of Workers' Health Recommendation, 1953 (No. 97)
- Occupational Safety and Health Convention (No. 155), and Recommendation (No. 164), 1981
- Occupational Health Services Convention (No. 161), and Recommendation (No.171), 1985
- Prevention of Major Industrial Accidents Convention (No. 174), and Recommendation (No. 181), 1993
- List of Occupational Diseases Recommendation, 2002 (No. 194)
- Protocol of 2002 to the Occupational Safety and Health Convention, 1981 (No. 155)
- Promotional Framework for Occupational Safety and Health Convention (No.187), 2006, and Recommendation (No. 197), 2006 procedures for the recording and notification of occupational accidents and diseases, and for the publication of related annual statistics.
- The ILO Occupational Health Services Convention (No. 161) and Recommendation (No. 171), 1985, provide for the establishment of occupational health services at the enterprise level, designed to ensure the implementation of health surveillance systems and to contribute towards implementing the OSH policy.

ILO (2012). Encyclopaedia of Occupational Health and Safety. http://www.ilo.org/oshenc. 4th edition, 2012.

Natural Resources Canada (2010). Guidelines for Bulk Explosives Facilities – Minimum Requirements. Series of Guidelines, including the 'Guidelines for the destruction of explosives, Bulletin #43'. Explosives Regulatory Division, Explosives Safety and Security Branch, Minerals and Metals Sector, Department of Natural Resources, Canada.

OECD/IEA and the World Business Council for Sustainable Development. (2009). Cement Technology Roadmap 2009 - Carbon emissions reductions up to 2050. Published by the OECD and IEA in partnership with the World Business Council for Sustainable Development.

UNEP (2012) .Technical guidelines on the environmentally sound co-processing of hazardous wastes in cement kilns. 2012 Secretariat of the Basel Convention.

Yav & Associates (2013). Labour Law of the Democratic Republic of Congo [DRC]. http://www.legavox.f/yav-associates/labour-democratic-republic-congo-10838.htm. 7/02/2013.

WHO (1994). Declaration on occupational health for all. 2nd Meeting of the WHO Collaborating Centres in Occupational Health, Beijing, People's Republic of China, 11-14 October 1994. Published by the World Health Organization, 1994.