NYUMBA YA AKIBA sarl

Emergency Preparedness

and

Response Plan

AUGUST 2013

Emergency Preparedness and Response 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

SRK Consulting (South Africa) (Pty) Ltd

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Table of Contents

List of Tables

1 Introduction

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 referred to as the EMMP in section 9) for the Nyumba Project ("the project"), in line with IFC Performance Standards 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.

This Emergency Preparedness and Response Plan (EPRP) should be read in conjunction with the Community Health and Safety Plan (See Appendix 13), and needs to be partnered with eh development of a Communication Plan (still to be developed by NYA) to ensure that communication gaps across cultural boundaries within NYA, as well as with communities are addressed for emergency situations.

2 Purpose of the EPRP

Article 94 of the *Code Menier* or Mining Code, specifies the need for an emergency management plan. This high-level EPRP has been developed in response to the potential for such incidents as medical emergencies, fires, non-scheduled explosions, vehicle accidents, hazardous materials spills/release, security, as well as natural disasters. The high-level EPRP sets out the framework for the operational EPPR that will be developed before construction, and provides an overview of:

- The governance framework for EPRP;
- An indication of internal and external capacity to address emergencies; and
- Requirements for the operational EPRP.

3 Scope of the EPRP

This EPRP provides information on what needs to be contained in the operational EPRP to be updated following detailed engineering design of the project and prior to construction. It also sets out

to identify the actions necessary for effective emergency preparedness and response (EPR). The operational EPRP needs to provide for efficient access to information necessary for successful response to, and management of, emergencies arising from either internal or external factors. The EPRP applies to emergencies within the project site, and encompasses incidents affecting the facilities and infrastructure during all project phases. It further pertains to transportation of goods, raw material and finished products to and from the project site. The scope of the EPRP also extends to natural disasters, as well as to manmade and third party events with potential to impact on health and safety within the project impact zone. The EPRP is also relevant to incidents resulting in impacts on the environment, and applies to people responding to incidents. Incidents affecting communities fall under the CHSP, but the tow plans should be implemented in a seamless manner.

Comprehensive and site-specific measures will need to be developed during the detailed project engineering phase, and relevant contact details will be identified prior to commencement of construction and operations. The EPRP will be subject to annual review and updating with records being retained of key changes, and those responsible for changes. A protocol for distribution and accessibility of components of the plan will need to be developed should aspects of the plan require confidentiality, such as for security reasons. It should be noted that the ESIA and ESMP, and the associated specialist reports, provide information on impact avoidance and mitigation of identified impacts. Recommendations provided by specialists are incorporated into the ESIA and ESMP.

4 Project 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. NYA has selected FLSmidth (FLS), a global engineering company based in Denmark as the design engineering and procurement contractor.

Quarrying of limestone will involve the following activities:

- Stripping of overburden;
- Excavation work including blasting;
- Determining of ore (raw meal) requirement;
- Depositing of overburden on overburden facility; and
- Transportation of the raw materials from the quarry to the cement plant, including via conveyors and dump trucks.

The cement manufacturing process will involve:

- Raw material preparation in which the raw material is crushed and blended to create a blended material;
- Pre-heating during which the material is fed into a pre-heating chamber before being fed into the kiln;
- Heating of the raw mix is heated to 1450°C in a rotating kiln furnace to produce a slurry;
- Cooling of the clinker which will leave the cooler at 65°C above ambient temperature;
- Final grinding during which clinker and gypsum are very finely ground to produce the final product;

- Storage in concrete silos before being packed into 50 kg bags (via two packing lines), before being and dispatched via truck;
- Final Grinding: a FSL mill combines the drying, grinding and separation process into one unit. This energy-efficient unit operates at a low noise level. The finished product is transported to the silos; and
- Process Control: The plant will be managed from a central control room that will allow the monitoring of all processes, including temperatures and pressures.

The cement plant will be supplemented by limestone and clay mining. For further detail on the project description, please refer to Section 4 of the ESIA and ESMP.

5 Governance framework

The requirements for the development and operation of emergency measures are outlined in Article 94 of the Mining Code. These requirements relate largely to occupational health and safety (OHS). Given the location of the project in relation to the surrounding communities and sensitive environments, it is recognised that the contents of an EPRP should extend beyond OHS to include community health and safety (CHS) relative to emergencies as well as measures to be taken in the event of accidents and emergencies that affect the biophysical environment. Please find the accompanying plans, namely the Occupational Health and Safety Plan (OHSP) and the Community Health and Safety Plan (CHSP) in Appendices 12 and 13 respectively.

5.1 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 favourable 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 Labour Code (Loi N° 015/2002 of 16 October 2002) as well as within a list of decrees found in the document "*Modalités d'application*". Article 94 of the Mining Code deals with Emergency Measures. It requires that: the operator must describe an emergency plan in case of accidents or natural disasters. The plan should include a description of the intervention programme to manage accidents with a high risk potential particularly landslides in rock and loose soils, major embankment dam break offs and caving-in of bottom workings occurring on the site. The intervention programme against accidents should include in particular:

- Immediate measures to apply;
- Measures and methods for marking out the risk zone to be evacuated or barred;
- Contact details of persons in charge of the mining operation and organisations with which he can enter into contact, particularly the local authorities, local community representative or police force.

Other references relevant to OHS 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.

5.2 International Standards and Guidelines

Provided in Table 4-1 below is an outline of the international guidelines relevant to the project.

Table 5-1: Summary of guidelines and policy

Guideline	Description
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 aspects including transparency and human rights.
IFC Performance Standards	PS3: Pollution Prevention and Abatement In terms of the IFC PS 3 – Pollution Prevention and Abatement, NYA should: • be in a position to respond to and prevent potential negative consequences of process upset, accidental, and emergency situations in a manner that is appropriate to the project's operational risks. • prepare a plan that addresses the training, resources, responsibilities, communication, procedures and other aspects, as required, to effectively respond to emergencies associated with the project's hazards.
	PS4: Community Health and Safety In terms of the IFC PS 4 – Community Health and Safety, NYA should: • evaluate the potential risks and impacts from project activities in all phases of the project, i.e. design, construction, operation and decommissioning, and inform affected communities of significant potential hazards in a culturally appropriate manner. • give particular attention to potential exposure to natural hazards with respect to infrastructure and equipment safety. • assist and collaborate with the community and the local government agencies in their preparations to respond effectively to emergency situations, especially when their participation and collaboration is necessary to respond to such emergency situations. NYA will supplement and complement local government agency emergency response, and will be responsible for dealing with emergencies associated with the project. . • document its EPR activities, resources and responsibilities, and disclose appropriate information to affected communities and relevant government agencies.
EHS Guidelines for: • General EHS • Mining • Cement and Lime Manufacturing • Construction Materials Extraction	The World Bank Environment Health and Safety (EHS) Guidelines contain performance levels and measures that are generally considered to be achievable in new facilities through the use of existing technology and at reasonable cost while the application of the guidelines to existing facilities may involve the establishment of site specific targets and timetables for achievement. 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 (NOx), sulfur dioxide (SO2), greenhouse gas (GHG) emissions, as well as heavy metals and other potentially toxic emissions;

Guideline	Description
	• 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. 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 (SiO2) 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. See Sections 8, 9, 13 and 14 for information on impacts, mitigation and monitoring measures.
UNEP/ICMM Good Practice Guides	The UNEP/ICMM Good Practice Guidelines specifically relate to NYA's ability to prepare for and respond to emergencies that occur as a result of the project's activities and have the potential to affect communities living in the vicinity of the project. Processes have been outlined that provide a step-by-step process for preparing, capacitating, communicating with, and involving communities in EPR. These processes are: • APELL, and • Emergency Planning for the Transport of Dangerous Goods (TransAPELL). While many EPR models exist, the APELL and TransAPELL models have been used as these are accepted industry good practice guides. The APELL process assists in raising community awareness of and capacity to respond to hazardous activities associated with industrial and mining activities in the vicinity through the implementation of a ten-step process. An important precursor to the implementation of APELL is the preparation of an operational NYA project-specific EPRP which can then be expanded to incorporate the communities. The TransAPELL process extends beyond the risks associated with the project footprint, fixed infrastructure and on site operations, and incorporates risks associated with the transportation and distribution of hazardous materials and considers transport routes, communities along those transport routes, facilities within those communities to attend to potential spillages/accidents and the nature of materials being transported The APELL and TransAPELL steps are described however it is recognized that many other models exist and may be equally appropriate.
Other international requirements, guidelines and standards	Other international requirements, guidelines and standards relevant to EPR 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;

Guideline	Description
	• 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 are documented inter alia in its 2003 Integrated Environmental and Social Impact Assessment Guidelines; • The 2010 European Investment Bank (EIB) Environmental and Social Practices Handbook in which requires likely significant effects of waste (including nuisance) on the environment from a proposed project should be described, evaluated using including valid methodology; • The EIB's 2009 Statement of Environmental and Social Principles an Standards develops the European Principles for the Environment (EPE), which is based on the relatively stringent approach to environmental matters developed and applied by the EU. Relevant directives to the WMP include: • The Directive 2004/35/CE on environmental liability with regard to the prevention and remedying of environmental damage, as amended by the Directive 2006/21/EC on the management of waste from extractive industries • The codified Directive 2008/1/EC including all previous amendments to the Directive 96/61/EC concerning Integrated Pollution Prevention and Control (IPPC) • The UNECE Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) . This imposes on Parties and public authorities obligations regarding access to information and public participation and access to justice • The EIA Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment as amended by Directives 97/11/EC and 2003/35/EC.

5.3 NYA corporate EPRP policy

While the NYA corporate policy is still evolving, policy developed to date is presented in Appendix 10. The 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). Comprehensive policy related to OHS and EPR 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 not entailing excessive cost (BATNEEC) 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 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 every two years) 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).

6 Potential sources of risk

Typical examples of risks which might be generated by NYA's internal activities during construction, operations and closure provided below have been drawn from similar projects, as well as the Leonardo da Vinci Commission Training Manual dealing with risks in the cement industry:

All Phases:

- **Non-compliance with measures resulting in incidents**: Incidents could result from such actions as failure to comply with safe behaviour, safety labelling, as well as not wearing PPE; work equipment failure; manual load handling.

Construction:

- **Traffic:** Traffic associated with construction vehicles, either due to collisions or accidental leaks, spills and incidents from chemicals or hydrocarbons resulting in soil and water pollution; and
- **Construction activities**: Construction accidents such as falls from a height and electrocution, as well as spillages and contamination of soil and water resources. There could also be accidents from community members accessing the construction site.

Operations:

- **Quarrying:** Contributors to risk associated with surface mining include: collapse of pit walls with potential health and safety risks to employees; geotechnical instability, resulting in collapse or flooding of the quarry resulting in risks to health and safety of workers;
- **Transport, storage and use of explosives:** Transport hazards include use of unauthorised vehicles, carrying of passengers, transport of explosives during unstable weather. Hazards during storage include storage of capsules and explosives in the same area; inadequate security; smoking or naked flame; inadequate distances between containers and warehouse wall bad housekeeping; unauthorised maintenance work. Hazards during use include use of incorrect explosives; failure to adhere to approved explosives plan; unexploded boreholes; use of mobile telephones or wireless near explosives;
- **Material transport to and from site and on-site**: Differential speeds between heavy vehicles, light vehicles, pedestrians and cyclists could result in traffic accidents. In turn, accidents could result in hazmat spillages. There could further be air accidents involving helicopters used for emergency access to site;
- **Handling, storage, use and disposal of hydrocarbons, chemicals and waste:** Contributors to potential risks associated with chemical management could cover inappropriate storage, mixing of chemicals and inappropriate handling. Inappropriate management of chemicals could result in fires and/or explosions affecting health and safety of employees and communities, as well as pollution of the environment;
- **Crushing**: Hazards in this area include rotational movements of equipment; exposure to noise and dust; movements of heavy goods vehicles; electrical hazards;
- **Milling processes at raw mill, cement milling and coal milling:** Hazards include moving parts of machinery; falling of personnel; exposure to dust and noise;
- **Silo cleaning operations – raw material and cement**: Hazards link to work in confined spaces; falling of material; exposure to dust and noise;
- **Kiln operation**: hazards include back firing of burner; working near hot surfaces; working in a hot environment;
- **Clinker production**: Hazards include contact with superheated materials; heat and noise exposure; incidents from fuels; falls from a height; insufficient ventilation; working in a confined space; use of high pressure pumps;
- **Filtering:** Hazards include asphyxiation; exposure to dust and heat; electrical hazards;
- **Loading of final product:** Incidents during loading include mechanical hazards from moving machinery; fire in the packing material; exposure to noise; exposure to hot material;
- **Overburden facility**: Structure could fail such as due to long length of slope and steep slope angles. Accidents would result in injury or loss of life of employees or community members. Contributors to risk of failure could be inadequate management, inadequate drainage and control of the hydrological regime, lack of appreciation of mechanisms triggering failure. A further instance could be failure to detect unsatisfactory foundation conditions; and
- **Failure of dams**: Failure of attenuation/ pollution control dams resulting in health and safety risks.

Decommissioning:

- **Overburden facility**: Structure could fail such as due to long length of slope and steep slope angles. Accidents could result in injury or loss of life of employees. Contributors to risk of failure could be inadequate management, inadequate drainage and control of the hydrological regime, lack of appreciation of mechanisms triggering failure. A further instance could be failure to detect unsatisfactory foundation/geological conditions;
- **Failure of dams**: Failure of attenuation/ pollution control dams resulting in health and safety risks.

Examples of environmental and social risks which could potentially be generated by external factors and/or 3rd parties requiring EPR from NYA are:

3rd party risks:

- **Other developments:** Emergencies generated by other projects/ adjacent land uses, such as other cement plants which may be developed in the area in the future. These could affect communities associated with NYA employees. A coordinated response would be required which if not implemented could affect NYA operations;
- **Security risks:** Potential sources of risk include possible illegal trespass into the project area, riots, military crises, political instability and hostage situations. These potential risks indicate the possible need for large-scale evacuations and emergency response by NYA with appropriate security support;
- **Aviation:** Inadequate airport facilities and capacity to handle an emergency and large scale evacuation could pose a risk. The limited availability of emergency flights to and from the project area poses further risk;
- **Limitations of local capacity to manage and respond to emergencies:** Lack of local training and infrastructure for emergency response such as ambulances or fire fighting equipment could result in the responsibility being placed on NYA to respond to all emergencies.

Major natural occurrences resulting in emergencies:

- **Major rain events on site or flooding from upstream:** Flooding of the project area has potential to affect the safety of employees, and could result in overtopping/ failure of the stormwater control dam and associated infrastructure. This could increase the severity of downstream flooding resulting in health and safety risks.
- **Fire from surrounding areas:** There is the potential for risk of fire spreading to the site, particularly during the during the dry season. Lack of fire fighting equipment in surrounding areas could result in the responsibility being placed on NYA to respond to all emergencies.

7 Overview of capacity to respond to emergencies

The EPRP will be refined prior to commencement of construction. Section 6 outlines emergency response capacity as it is understood at this stage of the project. Please refer to Section 9 and 13 of the ESIA and ESMP for detail on NYA human resources (HR) organograms.

7.1 NYA response to security emergencies

Contractual obligations of NYA to protect the safety of project staff and families, contractors and consultants will require that there is capacity to respond to emergencies from a security perspective. Relevant factors will include number of security staff, adequate numbers and appropriate training for relief staff, regular security status updates, and the need for a security action plan.

Three phases of response can be outlined as follows:

Phase 1:	A security concern has been identified and personnel are alerted to this but can continue working. At this stage all personnel are contacted via SMS and are advised to remain on alert.
Phase 2:	The security concern has escalated and all personnel are instructed to congregate in the identified meeting points (generally the parking lot outside each operational area). At this stage the Manager of each operational area is in charge of ensuring that all personnel at that area are moved to the identified meeting point.
Phase 3:	The security concern has escalated to evacuation level. At this stage the has the authority to shut down all operations and evacuate staff from the site. At this point his authority supercedes all other levels of authority.

Communications with respect to security situations and possible evacuations would be through satellite phones, cellular phones and the use of the Skype network used to send text messages to personnel and contractors to advise of security concerns and indicate which phase of the plan the situation is in.

The security measures will be communicated by NYA to external stakeholders who might include the United Nations, Consulates, the National Police, National Intelligence, Provincial Government, private security firms, and the surrounding projects and communities (refer to the CHSP). Regular meetings would be held to ensure coordination and integration of security plans and facilitate information sharing with respect to incidences, risks and broader security issues. Similarly, it is proposed that surrounding projects, supply their security plans to NYA if/ as these are developed in the future. Means of communication with media, relatives of employees and other relevant stakeholders in the event of an incident or emergency will be contained in an Operational Crisis Management Plan, the Major Incident Response Plan, and/ or their equivalent.

A comprehensive training and induction programme will be developed for each staffing level within the security staffing organogram with a minimum of three weeks of training at commencement of employment and at least annual refresher training. Training will need to include legal procedures incorporating a component on human rights.

7.2 NYA response to occupational health and safety emergencies

NYA will provide health services to their employees and dependents. Amongst the personnel reporting the Plant General Manager will be a Chief Medical Officer, supported by a First Aid Officer and Medical Centre Officer. NYA will provide health services for their employees and dependents. A clinic facility to deal with all project phases will be sited next to the accommodation facilities. There will be sufficient paramedic/medical capacity to treat minor injuries and stabilize patients prior to transfer to the hospital in Kimpese. Dedicated helicopter landing sites will be developed as required at appropriate points on site, and emergency evacuation to Kinshasa via helicopter will be undertaken when/if required.

Appropriate training will need to be carried out to ensure that there is sufficient on-site capacity to deal with emergency medical management and trauma management.

OHS risk assessment will need to be carried out to identify emergency scenarios and medical requirements. This information will need to guide the development of action plans developed by NYA. Consideration will need to be taken of off-site incidences and emergencies, and measures that will need to be in place for affected surrounding communities.

7.3 NYA response to environmental emergencies

Sound environmental management will be a priority for NYA. A key component of implementing strong environmental practice will be the development of an environmental management system (EMS) as outlined in Section 9 and 13 of the ESIA and ESMP. Training will be an important activity supporting the implementation of such aspects as induction training on general environmental management and job specific training such as control and clean-up of chemical spills. The objective of the environmental training programme will need to be towards the development of a culture of environmental awareness, accountability, responsibility and prevention so that personnel at all levels have sufficient knowledge and authority to proactively identify and prevent a situation that could potentially result in an environmental or safety emergency.

Included amongst those reporting to the Sustainable Development Manager, NYA will have:

- The Health and Safety Coordinator supervising a Fire Safety Officer and three Fire-Fighters, as well as two Life Safety Officers;
- An Environmental Coordinator with two Environmental Officers;
- A Community Development Coordinator supported by two Community Development Officers. They will be responsible for developing and maintaining relationships with the surrounding communities, as well as providing relevant project information to the communities.

The Chief Medical Officer, supported by a First Aid Officer and Medical Centre Officer will further provide emergency support.

8 Future development of the operational EPRP

It is proposed that the EPRP be aligned with the UNEP APELL process. Outlined below are the planning steps comprising to be followed by NYA in the development of the EPR action plan, to ensure that there is adequate allocation of resources for effective response emergencies. Once NYA has developed sufficient understanding of its own internal capacity, resources, competencies, risks and requirements in terms of EPRP, the company will develop elements of the Plan dealing with external/community aspects. The external steps focus on providing information to external stakeholders on potential hazards, and measures taken to reduce risks associated with living in close proximity to a limestone quarry and cement plant. The Plan will aim to increase the project's involvement in community awareness and emergency response planning, integration of the project and community plans, as well as involvement of communities in developing, testing and implementing the plans. The internal (this EPRP) and external steps (See the CHSP in Appendix 13) have been based on the ten-step APELL process outlined in the CHSP.

Integral to the development of EPR is comprehensive risk analysis to guide the content of the EPRP. This needs to be undertaken at relevant stages to deal with all project phases covering construction, operation and closure phases. EPR to risks and hazards need to be addressed from perspectives including security; occupational health and safety; environment; community; as well as potential for natural hazards. The remoteness of the NYA Project will also require that the impact of external security risks on the project's personnel and their families are identified and addressed. Risk analysis will further need to extend beyond the immediate footprint area of risk, so as to include on-site, off-site and downstream environmental receptors.

8.1 Internal EPR planning steps

Steps to be taken in the development of the internal plan, outlined in further detail in Table 8-1 below include:

- Identification of an EPR Champion;
- Identification of internal and external stakeholders and the roles they can/should be responsible for;
- Identification of capacity and resources within NYA for EPR;
- Internal workshops with NYA operational and service department directors to internalise EPR requirements;
- Risk assessment for all operational areas (internal risks) and all third party activities that could result in risks to NYA (external risks);
- Preparation of procedures and registers for management of chemicals, including hazardous chemicals, and hazardous materials; and
- Procedures for monitoring and evaluation.

Table 8-1: Internal EPR planning steps

Element	Action	Responsibility	Progress indicators	Timing	Resources / Budget
Pre-Emergency Planning					
Develop/expand NYA EPR policy statement	Comprehensive policy on EPR needs to be developed and applied to this high-level EPRP	Health and Safety Coordinator under the guidance of the Sustainability Development Manager Oversight from Board Risk Committed	NYA EPR policy; Corporate directives and policies Detailed design demonstrably informed by EPRP considerations	To be developed following authorization and prior to detailed project design	To be included in NYA operational budget
Hazard Identification Study (HAZID)	Emergency response information should identify process hazards via a HAZID process and document locations of these potential hazards. The HAZID will identify the design conditions and intent, and deviations for each key area of the project. Assessments for specific areas of project operation will cover cause, consequences, and existing safeguards, and based on findings a risk management program will be devised and implemented. The scope of the HAZID will include identification of triggers for review of the risk management programme, such as for change in design and production, as well as evaluation in follow-up to incidents.	Health and Safety Coordinator with guidance of the Sustainability Development Manager. Oversight from Board Risk Committed	HAZID documentation	To be carried out immediately following detailed project design	Budget to be reviewed based on HAZID process
Risk assessment	In order to prepare effectively to respond to emergencies it is necessary that NYA is sufficiently aware of the possible emergencies that could arise as a result of operational activities and how these emergencies could manifest themselves and take measures to prevent these from occurring. Some risk assessment work has already been undertaken and further risk assessments are planned with the objective of defining risk and identifying key risks (environmental, social, community, supply chain etc), what measures will be put in place to manage these risks, with a risk register as an output of the process.	Each operational area and service area with support from the Health and Safety Coordinator	Record of risk assessment workshops and risk registers	To be carried out immediately following detailed project design	Budget to be reviewed based on risk assessment process
	NYA plant operational staff will be required to add the lower order risks, from the abovementioned risk workshop, to their respective risk registers and as part of this process each Business Unit will be required to facilitate their own individual risk assessments to prepare or update their existing risk registers. • Each operational area and service area at NYA will prepare/update a risk assessment of all possible	NYA plant operational staff	Record of risk registers and assessment	To be completed prior to commencement of construction	To be included in NYA operational budget

Element	Action	Responsibility	Progress indicators	Timing	Resources / Budget
	emergencies and evaluate according to: ○ What could go wrong ○ Likelihood ○ Frequency ○ Previous similar emergencies ○ Design measures that are in place to prevent or reduce such emergencies ○ Standard Operating Procedures in place to handle an event ○ Training of personnel/skills to handle an event ○ Evaluation of possible receptors ○ No of community/households that could be affected ○ Environmentally sensitive receptors ○ Possibility of simultaneous events ○ Complications as a result of local conditions (e.g. impassable roads) ○ Financial implications - what will it cost if it goes wrong ○ Capacity of other stakeholders to assist in responding to an emergency ○ Mechanisms for communicating beyond the boundaries of the project • The risk assessments will be reviewed at minimum by the following: ○ Engineering manager ○ Security manager ○ Environmental manager ○ Health and Safety manager ○ Community Manager • NYA management will review and update the risk assessments at least once a year as well as when there are material changes to the project description.		Record of review and updates		
Emergency organization and responsibilities	It is necessary that at a strategic level an EPRP champion be identified to provide guidance, structure and ownership to the process of developing an EPRP. It is suggested that the 'owner' of the EPRP should be the Health and Safety Coordinator reporting to the Sustainability Development Manager, The Director General will however have overall responsibility for EPR at NYA.	NYA Director General: Overall responsibility The Health and Safety Coordinator Administration and	Champion identified and job descriptions in place A regularly updated organogram of Emergency Response Team (ERT ,	To be completed prior to commencement of preconstruction	To be included in NYA operational budget

Element	Action	Responsibility	Progress indicators	Timing	Resources / Budget
	The overall EPRP champion will be capacitated in, trained and sensitive to the requirements of EPR. Responsibilities will be further identified as follows: • Carry out clarification of responsibilities for internal EPRP: o Procedures for vetting and appointment of appropriate ERT members o Duties for developing, reviewing and updating allocated tasks including: ▪ Specifications and quantity emergency response equipment ▪ Planning, procurement, installation, documentation and communication of locations of emergency response equipment and facilities. This is to be done in line with hazards identified ▪ Inspection, maintenance and review of emergency response equipment and facilities ▪ Procedures and responsibilities for, and implementation of, incident investigations, documentation, follow-up, corrective actions and review. o Regular training and review of skills of the ERT members o Developing, implementing and regularly reviewing training modules for preparing employees in emergency drills and response. o Emergency response with associated chain of communication for mobilizing resources. It is necessary that in any situation, leadership should have the confidence, capacity, availability and the articulated responsibility to direct the situation. In certain situations it may be appropriate that the direction of the situation be the responsibility of a line function manager, however where any situation exceeds the boundaries of one operational area it is necessary that the leadership be elevated to a higher level. o Where necessary and in response to gaps identified through review, provision of services by external ERT contractors for support for on-site EPRP o Internal communication and reporting.	Security Manager	organizational structure, descriptions of responsibilities, and individuals allocated Chain of command identified Job descriptions reflect chain of command. Means of verification of suitability of qualification need to be developed and implemented Contact details for the responsible individuals List of personnel, rescue and evacuation workers Contact information for different emergency scenarios		

Element	Action	Responsibility	Progress indicators	Timing	Resources / Budget
	The Health and Safety Coordinator or other designated responsible person will have complete authority to control the situation in the event of a security emergency. The allocation of responsibility for the coordination of an emergency will be allocated by functional discipline according to the incident typology. Job descriptions and Key Result Areas (KRAs) will be updated as relevant to ensure that the necessary operational directors have the relevant EPR responsibilities incorporated into their functions.	The Health and Safety Coordinator or other designated responsible person	Chain of command linked to scenarios	To be in place prior to commencement of preconstruction	To be included in NYA operational budget
	In addition to having an overall EPR Champion, it is noted that within NYA a culture of awareness, accountability and responsibility should be developed with the objective being that all personnel are capacitated with the knowledge and responsibility to prevent potential accidents and emergencies, stop these from escalating and have sufficient knowledge on what to do if they are first on the scene and thereafter how to escalate responsibility up the chain of command.	Training Department	Training plan	To be completed prior to commencement of preconstruction	To be included in NYA operational budget
EPR resourcing and capacity	Effective response to any emergency situation requires that the necessary equipment, resources and capacity are available at NYA. Specifically it should be noted that if NYA is to incorporate the APELL requirements, dedicated personnel (at least for an initial period) will be required for the purposes of facilitating the external communications, capacity building and training of communities, external stakeholders and individuals who are to play a role in the EPRP.		Inventory of EPR equipment, resources and training	To be completed prior to commencement of preconstruction	To be included in NYA operational budget
	NYA will assess current staffing capacity and job functions with a view to identifying where competencies and skills are available and currently underutilized, and/or identifying where additional capacity is required to address responsibilities that currently cannot be addressed due to lack of capacity.	HR with input from Sustainability Development Manager and	Job analysis	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	Budget to be determined by HR
	NYA will prepare an inventory of the following: • Equipment required and available for EPR, its location and state of repair • Vehicles and other transport facilities available for EPR and whether these are dedicated or not • Communications equipment such as cell phones, loudhailers, notice boards, sirens, etc	Manager: Safety, Manager: Security, Manager HR, Manager: Training	Inventory of EPR equipment and training	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget

Element	Action	Responsibility	Progress indicators	Timing	Resources / Budget
	• Personnel trained in first aid, firefighting, hazardous chemical clean up and their location/availability on site				
	• NYA will identify which EPR equipment and resources are not available on site and have not yet been budgeted for. • NYA will prepare a cost motivation for items that are still required • Carry out design, installation and management of alarm and emergency communication systems	Manager: Safety, Manager: Security, Manager HR, Manager: Training	Gap analysis Budget motivation Installation of required equipment/ systems	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	Include in cape budget for appropriate year
Internal alerting	NYA will set up internal lines of communication for notification of emergencies. Mechanisms/ technologies and electronic communications for carrying this out will be identified. Numerous parties within NYA will have an interest in or be affected by an emergency situation and as a result there are a number of roles and functions that need to be resourced to adequately address any emergency. A stakeholder analysis should be undertaken to identify a listing of stakeholders within NYA that will have a responsibility in terms of: • Preventing • Controlling • Communicating (internally and externally) • Responding • Assisting • Reporting • Monitoring With multiple stakeholders involved in EPR, it will be necessary for NYA to ensure that all personnel with EPR responsibilities share a common understanding and approach to EPR. The Health and Safety Coordinator or otherwise designated person will convene an internal workshop(s) with all operational and service area directors to: • Sensitize personnel to the requirements and importance of an EPRP • Sensitize and educate personnel on the requirements of EPR models • Facilitate a preliminary risk evaluation in terms of EPR for each operational and service area • Discuss various emergency scenarios.	The Health and Safety Coordinator, plus all operational and service area managers, and selected personnel as identified in internal stakeholder analysis	Analysis of stakeholders and allocation of responsibilities Internal communication plan Minutes of workshops and attendance registers	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget

Element	Action	Responsibility	Progress indicators	Timing	Resources / Budget
External alerting and public affairs	The internal and external alerting systems need to be aligned for relevant scenarios. • NYA will set up lines of communication for external liaison and reporting, including coordination with emergency services, appropriate communication with the media, as well as reporting to, and liaison with, authorities. Mechanisms/ technologies and electronic communications for carrying this out will be identified.	Sustainable Development Manager Health and Safety Coordinator Human Resources Community development Administration and Security Manager Selected stakeholders based on external stakeholder analysis	Analysis of stakeholders Communication Plan	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget
Emergency response					
Corporate Directives and Standard Operating Procedures to address risks	The following Corporate Directives and Standard Operating Procedures (SOPs) should be prepared to cover aspects including: • Directive on EPR • Major Incident Response Plan • Emergency and Fire Plan • Emergency Medical Management Plan. • Risk assessment SOP • Simulations of emergencies for testing and training SOP • Shutdown of operations in emergencies SOP • Hazardous chemical storage, handling and transport SOP • Spill response SOP	Business Unit managers with support from Environment Division and Health and Safety Division	SOPs	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget
	NYA will collate and review all SOPs that relate to EPR with the objective of confirming their appropriateness in light of the risk assessment above. All SOPs will be reviewed by at minimum the EPR Champion, the operational director for each operational area, as well as representatives from the environmental and safety departments.	The Health and Safety Coordinator	Records of review of SOPs	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget

Element	Action	Responsibility	Progress indicators	Timing	Resources / Budget
	NYA will ensure that for any risks identified above, that do not have associated SOPs, new SOPS will be prepared by the relevant operational manager and reviewed at minimum by the Engineering Manager, and representatives from the environmental and safety departments.	Plant operational managers with support from the Health and Safety Coordinator and the Sustainable Development Manager	Evidence of new SOPS where relevant	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget
	Emergency response procedures will be detailed for different scenarios and the process and requirements for preparedness and response to given emergencies will be described. This will include such aspects as: • Response Action Decision planning to provide a clarity on responsibilities in different scenarios • Plan Activation and Response Mobilization • Required personal protective equipment (PPE) and requirements for ensuring the health and safety of the responders • Response Action and Procedures for containment/mitigation, and cleanup/remediation of the emergency • Method of alerting key response personnel, as well as activating required resources • Establishment of on-site Emergency Operations Center (Incident Command Post) • Evacuation/rescue procedures and assembly points • General Emergencies • Medical Emergencies procedures • Fire Emergencies procedures • Non-Scheduled Explosions procedures • Vehicle Accidents procedures • Hazardous Materials Releases (covering a range of substances including Flammable and Combustible Materials, Corrosive Materials, Oxidizing Materials, Reactive Materials, Biological and Infectious Materials, as well as Gaseous Releases and Safe Storage of Gases) • Procedures for disposal of Spilled Contaminants and Debris • Procedures for Natural Disasters • Procedure for accurately assessing an emergency, defining of priorities and evaluating the need for personnel,	Plant operational managers with support from the Health and Safety Coordinator and the Sustainable Development Manager	Protocols and operating procedures for different emergency scenarios Response Actions and Procedures Records of review/audit	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget

Element	Action	Responsibility	Progress indicators	Timing	Resources / Budget
	equipment and need for a safety plan • Post-Incident Evaluation				
	Training procedures will cover: • Identification and implementation of appropriate training of all relevant personnel • Practice drills will be carried out, including for users of the emergency communication system protocols and equipment • Emergency drills and testing of alarms and other equipment will be carried out at least annually • Evaluation of efficiency and correct procedure to be carried out following drills	Human Resources (training division) with input from the Health and Safety Coordinator	Training plan Training materials Records of drills Records of evaluation of drills	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	Budget to be determined by Training Division
Prepare a chemicals and hazardous materials register	Identification and risk assessment of hazardous materials that are used on site.	The Health and Safety Coordinator with input from plant operational managers	Hazardous materials risk assessment documentation	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	
	• NYA will prepare a centralized register of hazardous materials used on site in consultation with all operational areas. The register will include: o Where materials are used o How the materials are stored o Quantities in use o How materials are disposed of o How materials are handled o How materials are transported o The area of influence associated with potential spillages of specific hazmats.	Plant operational managers with support from the Health and Safety Coordinator and the Sustainable Development Manager	Hazardous materials register	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget
	• NYA will obtain and file material safety data sheets (MSDS), in at least English, French and Swahili, for all chemicals and hazardous materials and will ensure that all personnel that handle chemicals and hazmats, have been trained in the correct handling, transport, use and disposal thereof • A summary of MSDSs, will be prepared for each hazardous material and provided to personnel as part of training materials • Appropriate signage will be prepared and erected ensuring that relevant international conventions are adhered to with	Human Resources (training division) with input from the Health and Safety Coordinator	File of MSDSs MSDSs Signage	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget

Element	Action	Responsibility	Progress indicators	Timing	Resources / Budget
	respect to symbols, size, visibility and recognition.				
	• NYA will confirm that all hazmat transporters are aware of and trained in their responsibilities with respect to hazmat transport, and that at minimum the following are in place: o Tremcards (Transport emergency cards) are prepared for each cargo, in the language that is understood by at least the driver, the destination country and the recipient of the cargo, o Drivers are well trained and equipped for a hazmat spillage, transport, handling and transfer	Manager; Supply Chain with support from Human Resources (training) and Health and Safety Coordinator	Tremcards and training records	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget
	• NYA will review and update the hazmat register at least bi-annually	Plant operational managers with support from the Health and Safety Coordinator and the Sustainable Development Manager	Record of updates	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget
	• A fully equipped Spill Response Intervention Mobile Unit will be available at NYA at all times with suitably trained personnel to make use of the equipment.	Health and Safety Coordinator	Evidence of equipment Training records	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget
Monitoring, measurement and evaluation	In order to support the commitment of preventative action it is necessary to establish a programme of monitoring and measuring certain parameters to ensure that NYA is timeously aware of conditions that could give rise to an emergency. • NYA will establish a monitoring and measurement programme that outlines the parameters that will be monitored, the frequency of monitoring and the dissemination and actions to be taken relative to the results of monitoring and measurements. • Regular evaluation of the EPRP will be carried out • Instigation of a review of the EPRP should be guided by changes in the regulatory/legislative environment; occurrence of incidents and non-conformances, as well as time elapsed since previous review	The Health and Safety Coordinator and the Sustainable Development Manager and plant operational managers	Monitoring and measurement programme Monitoring records Updated EPRP	To be completed prior to commencement of preconstruction, and reviewed at appropriate intervals thereafter	To be included in NYA operational budget

Element	Action	Responsibility	Progress indicators	Timing	Resources / Budget
	• The procedure for reviewing and updating the EPRP will: o Detail the process for review o Identify the designation of personnel for ensuring that regular review is carried out o Identify the designation of personnel tasked with updating components of the EPRP o Specify the requisite minimum skills and experience for carrying out the review or components thereof.				

9 Conclusions

The NYA project is located in an area that is isolated in terms of accessibility, infrastructure and social services. The area also experiences high levels of poverty and stakeholders including authorities are under-capacitated to prepare for, or respond to, emergencies. NYA OHS plans will need to deal with emergencies that could pose a risk to the biophysical and social environment during construction, operation and decommissioning / closure. This EPRP and the CHSP (lay out the steps that NYA will take in order to position itself for emergency situations that present risks from natural disasters, NYA's activities, employee or third party activities. The process is based primarily on the APELL process which is an internationally upheld good practice guideline for preparing for, and responding to, emergencies associated with the project, its environment and surrounding communities.

10 Documents to consult

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