

Quarry rehabilitation and biodiversity Directive

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1. Introduction, scope and objective

The Quarry Rehabilitation¹ and Biodiversity Directive (“Directive”) is issued under the Holcim Environmental Policy.

The Environmental Policy Landscape is made up as follows:

- **Principles** are defined in the Environmental Policy and are mandatory to uphold.
- **Requirements** as defined in the Environmental Directives are mandatory for compliance in order to fulfil the Environmental Policy Principles.
- **Standards** as defined in the Environmental Standards are mandatory for implementation.

The scope of this Quarry Rehabilitation¹ and Biodiversity Directive is worldwide and applies to Holcim Ltd and its “Countries” which are financially consolidated and/or under management control. Included in the scope are the following sites:

- Mineral extraction sites, including quarries and pit for both cement and aggregate operations, that is,
 - ✓ Any extraction sites owned or leased by a Holcim company;
 - ✓ Any extraction sites under the management control by a Holcim company; or
 - ✓ Any extraction sites where a Holcim company is the holder of the mining rights.

This includes both operating and temporarily inactive sites. Where new operating quarries are acquired, this Directive will be implemented within three (3) years of acquisition. The Directive does not apply to fully closed, legally compliant sites.

In associated companies or joint ventures where Holcim does not have financial or management control, the responsible Group Executive Committee Member will establish that the associated company or joint venture is aware of the Directive and will encourage its adoption or at least essentially equivalent standards by such associated company or joint venture.

Holcim commits that a Rehabilitation Plan will be in place and executed at all mineral extraction sites included in the scope. Depending on the local importance of biodiversity, regulatory requirements, and circumstances, measures to protect and, where possible, enhance biodiversity will be fully integrated into the development of the Rehabilitation Plan.

In addition, Holcim commits not to open new sites or explorations within protected areas declared under World Heritage, IUCN I and IUCN III.

The objective of the Directive is to define the requirements which aim to achieve the following:

- To ensure that extraction site operations and rehabilitation, at a minimum, meet all applicable laws and regulations;

¹ The term “Quarry Rehabilitation” as used in this document refers to all activities needed to ensure that quarry operations are closed in an environmentally and socially responsible manner with the objective of ensuring a sustainable post-quarrying land use. It is the overall term for renaturation, restoration, reclamation, re-cultivation and includes progressive rehabilitation.

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- To make the exhausted site safe and stable for future land use;
- To manage impacts, risks and future liabilities;
- To promote the evaluation of different options for future uses, balancing the socio-economic and environmental considerations (e.g., potential for employment and income generation, opportunities for biodiversity enhancement);
- To assess likely effects on biodiversity over different phases of quarry development, from site preparation and development, operation, rehabilitation, and closure;
- To ensure the mitigation hierarchy² is applied and where possible, identify opportunities for enhancing biodiversity to achieve viable positive change for biodiversity (e.g. improve existing habitat conditions, create new habitat with a high regional importance); and
- To understand better the financial requirements of the quarry closure, including rehabilitation related activities.

2. Rules and requirements

In order to meet the objectives set in this Directive, the following seven (7) Rules and Requirements of the Quarry Rehabilitation and Biodiversity Directive are defined.

2.1 Rule 1: Comply with legal requirements and the Holcim Code of Business Conduct

Compliance with applicable laws and regulations and the Holcim Code of Business Conduct is a minimum requirement. Land control, surface rights and mineral rights, as well as, local requirements for site biodiversity management must be taken into account in the development of any quarry rehabilitation plan. Guidance regarding dealings with government officials can be found in the Holcim Anti-Bribery and Corruption Policy (Annex 1).

Systems and processes must be in place to understand and comply with all requirements related to quarry rehabilitation.

Should the implementation of this Directive require revisions of previously approved rehabilitation plans, a prior review by a suitably qualified person must be conducted to determine whether changes to permit conditions are required, or whether existing operating permits can be revised, without jeopardizing the viability of ongoing operation.

2.2 Rule 2: Understand the site characteristics and identify the extraction impacts

In order to develop quarry rehabilitation plans and biodiversity management plans effectively, it is crucial to understand the nature of the mineral deposits, the environmental characteristics of the area, and the impacts of the extraction activities to the communities and the environment. To make this possible, the following investigations are required:

- Characterization of the physiography, the geological structure, the raw material properties, the hydro(geo)logical situation, the infrastructure of the site of interest through proper research and investigation;

² Mitigation (conservation) Hierarchy: Avoidance, Minimization, Rehabilitation/Restoration, Offset and Compensation

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- A robust long-term raw material extraction strategy must be developed, considering all relevant and applicable factors and constraints (e.g., legal, economic, geological, production, operation, slope and ground stability, environment, and social). Mine plans should be developed in accordance with other Holcim policies, directives and guidance.
- Identification of potential threats and opportunities on ecosystems, water and communities resulting from the planned extraction activities;
- The mitigation hierarchy shall be applied and Areas of high biodiversity value shall be identified according to the Biodiversity Management System (BMS);
- For Existing Sites: Identification of site aspects and impacts as per the site Environmental Management System (EMS); and
- For New Sites: all direct and indirect impacts of raw material extraction in relation to air, water, health and safety, ecosystems and ecosystem services, social and community well-being shall be identified by means of an Environmental and Social Impact Assessment (“ESIA”).

2.3 Rule 3: Proactively engage with relevant stakeholders

An active engagement with relevant stakeholders in the early stage of a mining project is fundamental to understand their needs and establish trust in developing the quarry rehabilitation plans and biodiversity management plans.

The Communities and Stakeholder Engagement Directive, the Stakeholder Engagement Handbook and related tools are the reference document for planning and implementing stakeholder engagement activities.

The key elements to make this viable are as follow:

- Assess the level of stakeholder engagement that is required in order to develop and execute a Rehabilitation Plan;
- Relevant stakeholders must be identified according to local conditions (e.g., industrial or agricultural interests, representatives of local communities, authorities, NGOs, etc.) and must be consulted in the planning process;
- Opportunities for developing strategic partnerships and engaging in a multi-stakeholder collaboration should be explored; and
- A communication concept shall be put in place according to local needs and embedded in the overall communication strategy of the Country.

2.4 Rule 4: Identify the risks and opportunities and establish a Biodiversity Management Plan for sites of high biodiversity importance that is aligned and integrated with the Quarry Rehabilitation Plan

The objectives and targets of the rehabilitation concept must be developed in alignment with the overall long term raw material extraction and land use strategy. Once the objectives and targets are set, the rehabilitation plan aimed at meeting these objectives can be established and is aligned with the mining or extraction plan. It is important to define the end-use of the land post-quarrying early in the planning process, and to set objectives and targets accordingly. These can be further refined during the extraction operation lifetime. Specific consideration shall be given to:

- Existing permit requirements;

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- Economic viability;
- Needs of the local communities;
- Elevation of rehabilitated lands to the highest and best use;
- Reintegration of the site into the surrounding environment;
- Opportunity to enhance biodiversity or water resources; and
- Sustainable post-closure use.

The appropriate level of biodiversity management for the site must be determined based upon the assessment of risks and opportunities according to the methodology given in the Biodiversity Management System (BMS). Biodiversity Management Plans (“BMPs”) for sites of high biodiversity importance must be developed according to the identified risks and opportunities, together with relevant stakeholders to maintain or enhance the biodiversity values of the site and its surroundings throughout the lifetime of the quarry. In specific cases, BMP’s developed must be reviewed externally.

The Biodiversity Management Plan must contain clear objectives and targets for biodiversity management and must be integrated into the appropriate site management systems, including the quarry rehabilitation planning process, Environmental Management Systems, or site operational plans. A management plan for biodiversity should, at a minimum, be considered as a supplement to the quarry rehabilitation plan, and in other cases, as core part of the quarry rehabilitation plan.

2.5 Rule 5: Implement Quarry Rehabilitation Plan and Biodiversity Management Plan

The implementation of the Quarry Rehabilitation Plan and the Biodiversity Management Plan involves carrying out the actions and processes detailed in the plans to meet the established objectives.

Progressive rehabilitation is preferred to demonstrate good faith to stakeholders and regulators, to enhance Holcim reputation of conducting business responsibly, and to reduce the overall operational cost and the financial liabilities for the final quarry closure.

All required actions, as defined in the Biodiversity Management Plan, to manage biodiversity (e.g. to protect endangered species) shall be considered during the planning, opening and extraction phases of quarry development.

Key principles to consider in the implementation:

- For quarry opening: A rehabilitation concept must be developed showing the final layout and the future land use. To ensure the optimal use of the mineral resources, the quarry rehabilitation concept is translated into mid- and long term plans, taking into consideration biodiversity requirements, and must describe in detail the stages of their implementation.
- During the operation: Rehabilitation must be integrated into the extraction plan. In order to achieve this, periodic reviews of the extraction plan must be conducted and updated as needed, depending on local requirements. In parallel, actions identified in the BMP to achieve biodiversity targets and objectives are implemented.
- For closure of the quarry: A detailed final rehabilitation plan shall be developed, showing the final layout of rehabilitated areas and land use, and reconciled with the actual situation in the field.

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Other key principles:

- Safety: Health and safety is our core value
- Resources: The company should provide adequate resources (financial and otherwise);
- Review: The progress made during implementation should be reviewed on a regular basis; and
- Stakeholder involvement: The expertise, resources and skills of stakeholders should be involved wherever possible in the implementation (e.g., local communities can be involved in the replanting activities).

2.6 Rule 6: Make financial provisions

Group companies must set up financial provisions for site rehabilitation costs, including requirements as defined in the BMP, in compliance with Holcim Accounting Rules (LHARP) and with local financial/regulatory requirements. This provision shall be initially based upon the overall rehabilitation concept cost estimate and adjusted during the operation as rehabilitation and biodiversity management plans are further refined and as required by accounting rules.

2.7 Rule 7: Review of the Quarry Rehabilitation Plan and Biodiversity Management Plan

The review of the Quarry Rehabilitation Plan and Biodiversity Management Plan will assess to what extent the initial objectives have been achieved and the effectiveness of the corresponding actions. Based on the outcome of the assessment, the objectives and/or actions may have to be adapted accordingly. The frequency of review shall depend on the local requirements (permits) and the progress of the quarry development. In the absence of stricter regulatory requirements, a review must be carried out every five (5) years. Exemption from the 5 year review shall be allowed subject to approval of Group (CEM/AGG) functions.

If as a result of the review significant changes are anticipated, relevant stakeholders as locally defined shall be consulted, where appropriate and at an appropriate time. Any significant changes agreed with relevant stakeholders must be documented.

3. Monitoring and Reporting

3.1 Monitoring Progress

The progress of rehabilitation and biodiversity management activities must be monitored and evaluated as required by the local authorities, or at least on an annual basis. The results should be assessed as part of the EMS and improvement actions should be defined if needed.

Changes in biodiversity conditions will be monitored using the Biodiversity Indicator and Reporting System (BIRS).

3.2 Data Monitoring

All Countries and active sites must report quarry rehabilitation and biodiversity indicators, as defined by Group Sustainable Development, according to Holcim Environmental Reporting Standard. This standard specifies the mandatory reporting tools, reporting frequency, and reporting scope.

4. Organization

4.1 Group Level

4.1.1 Quarry Rehabilitation and Biodiversity Steering Committee

The committee consists of function heads from Sustainable Development (SD), Cement Excellence Manufacturing (CEM), and Aggregates (AGG). The committee reviews and endorses amendments to amendments to the Chief Sustainability Officer (ExCo member).

4.1.2 Group Sustainable Development Function

- Reviews and proposes amendments to this Directive where and when necessary
- Assists Countries in understanding and applying the Directive
- Provides standards and tools in the implementation of the Directive
- Supports training on the Directive in the Countries
- Supports experience exchange and share best practices between Countries
- Monitors compliance of the Countries with this Directive, tracks annual progress, and provides annual progress reports to ExCo
- Chairs the Biodiversity Expert Network
- Provides support on quarry rehabilitation planning and biodiversity management

4.1.3 Other Group Functions (CEM, AGG)

- Provide technical support, including training, on quarry development and management
- Provide advice in engaging technical resources to ensure the geotechnical safety of the exhausted site
- Cooperate with Group SD in the interpretation of this Directive
- Support experience exchange and share best practices between Countries, together with SD
- Support reviews of the Directive and proposed amendments
- Are a Member of the Global Biodiversity Experts Working Group

4.2 Regional Management

SD Responsible/Environmental Coordinators/experts at regional level are expected to:

- Facilitate the roll-out of this Directive and its supporting tools,
- Support the implementation of this Directive;
- Share good practices and promote success stories pertaining to quarry rehabilitation and biodiversity.

4.3 Country Level

4.3.1 Country CEO

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- Is ultimately responsible and accountable for the implementation and compliance of the Country with the Quarry Rehabilitation and Biodiversity Directive;
- Delegates responsibility for the implementation of the individual requirements of the Directive to the concerned functions/managers within the organization
- Ensures the exhausted site is geo-technically safe and stable for future land use.

4.3.2 Country Environmental Coordinator/Environment Manager/Quarry Manager

- Ensures that the Country CEO has complete and reliable information on the Country's compliance with this Directive
- Reports annually the status of implementation and compliance to Group Level via the functional environmental reports.
- Supports the implementation of the requirements of this Directive within the organization, notably seeking input from Country legal to assess legal requirements

4.3.3 Country CFO or Head of Finance

- Makes financial provisions for site restoration, regularly reviews and updates them

This Directive was approved by Group Executive Committee on October 20, 2016 and will come into force on November 2, 2016.

Original dated: October 31, 2016	Revision Dates: April 2020
Version dated: October 31, 2016	
Responsible Group Executive Committee Member: Magali Anderson – Chief Sustainability Officer	

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Annexes

Annex 1: Holcim Policies, Directives and Standards related to Holcim Quarry Rehabilitation and Biodiversity Directive

Link	Description	Responsibility	Reference
Cement Environmental Directive	The Directive specifies the environmental requirements for cement operations to be complied with in order to fulfill the Environmental Policy principles. Its objective is to identify, manage and mitigate environmental impacts and risks to prevent environmental damage, negative health impacts on surrounding communities as well as related reputational damage.	Chief Sustainability Officer	Environment Policy
Environmental Directive for Aggregates and RMX Operations (under development)	The Directive specifies the environmental requirements for non-cement operations to be complied with in order to fulfill the Environmental Policy principles. Its objective is to identify, manage and mitigate environmental impacts and risks to prevent environmental damage, negative health impacts on surrounding communities as well as related reputational damage.	Chief Sustainability Officer	Environment Policy
Communities and Stakeholder Engagement Directive	The Directive defines the requirements for the relationship with Communities and Stakeholders.	Chief Sustainability Officer	Corporate Citizenship Policy
Stakeholder Engagement Handbook	The Handbook provides guidance and templates on how to develop a Stakeholder Engagement Plan in all operational sites.	Chief Sustainability Officer	Communities and Stakeholder Engagement Directive

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Holcim Code of Business Conduct	The Code specifies how to act with integrity performing tasks, and offer guidance on how to deal with challenging situation	Group CEO	Holcim Code of Business Conduct
ABC Policy	The Policy sets out the relevant principles for appropriate business conduct and related rules when interacting with Third Parties, whether Public Officials or commercial parties.	Group CEO	Anti Bribery and Corruption Policy

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Standards and Tools

Link to Quarry Rehabilitation and Biodiversity Directive	Description	Responsibility	Reference
Biodiversity Management System Standard (under development)	The Standard sets out the overall framework for biodiversity management at Holcim across the entire site lifecycle. It specifies how to determine the biodiversity importance of the site, the potential impacts from the operations, risks and opportunities, and the level of management needed.	Chief Sustainability Officer	Holcim Quarry Rehabilitation and Biodiversity Directive
Biodiversity Indicator Reporting System (BIRS)	BIRS is an IUCN monitoring and reporting protocol to assess the site biodiversity condition, taking into account the extent of every habitat type found on site, ecological conditions of these habitats, and the uniqueness and ecological importance of each habitat in a regional context.	Chief Sustainability Officer	Holcim Quarry Rehabilitation and Biodiversity Directive
Environmental Management System Standard (under development)	The Standard describes the group wide approach in terms of EMS. It defines the specifications and requirements related to set-up, documentation and maintenance of an EMS that conforms to the ISO14001 standard.	Chief Sustainability Officer	Cement Environmental Directive
Environmental Reporting Standard (under development)	The Environmental Reporting Standard defines the reporting frequency, the reporting scope as well as the mandatory reporting tools.	Chief Sustainability Officer	Cement Environmental Directive

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Annex 2: Holcim Recommendations related to Holcim Quarry Rehabilitation and Biodiversity Directive

Recommendation	Definition / Description	Reference
Quarry Rehabilitation Manual	The Manual supports in quarry rehabilitation planning for new project development and for operational sites.	Legacy Holcim document
Rock Module 10: Mineral Resources and Land Management	Module 10 of the ROCK program identifies key concepts and best practices for mineral resources and land management.	ROCK Handbook, ROCK program
Biodiversity Management Plan (BMP)	BMP describes the site management approach to sustainably manage biodiversity at site level. BMP is site specific, that is, with strict adherence to the requirements defined in the Holcim Quarry Rehabilitation and Biodiversity Directive, each site develops strategies to achieve targets/goals that address all site biodiversity related issues, opportunities and risks. The different requirements can be integrated in one single document or incorporated in the appropriate site management systems, e.g., Environmental Management System, Site Operational Plans, Quarry Rehabilitation Plan).	Holcim Quarry Rehabilitation and Biodiversity Directive

Annex 3: Definitions and Abbreviations

BMP	Biodiversity Management Plan
BMS	Biodiversity Management System
BIRS	Biodiversity Indicator Reporting System
IUCN	International Union for Conservation of Nature
IUCN Protected Area	The IUCN definition of a protected area is “A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values
IUCN Protected Area Management Category Ia	Strict Nature Reserve They are defined by IUCN as “strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values
IUCN Protected Area Management Category Ib	Wilderness Area They are defined by IUCN as “large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition”
IUCN Protected Area Management Category III	Natural Monument or Feature They are defined by IUCN as “areas set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove They are generally quite small protected areas and often have high visitor value
Quarry Rehabilitation	All activities needed to ensure that quarry operations are closed in an environmentally and socially responsible manner with the objective of ensuring a sustainable post-quarrying land use. It is the overall term for re-naturation, restoration, reclamation, re-cultivation and includes progressive rehabilitation.
QRBD	Quarry Rehabilitation and Biodiversity Directive
World Heritage Sites	A World Heritage Site is a place (such as a building, city, complex, desert, forest, island, lake, monument, or mountain) that is listed by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as being of special cultural or physical significance.