

Lafarge Biodiversity Strategy

Foreword

"Preserving the planet's ecological balance is an essential pillar of sustainable development and all businesses can contribute to protecting biodiversity and enhancing ecosystems.

Managing biodiversity has been a long-standing focus for Lafarge, at both Group level and within our operations. On the ground, we actively work to minimize the impact of our quarries on their surrounding environment. Today we are recognized for our ability to rehabilitate areas that we have quarried and to recreate ecosystems that are rich in biodiversity.

Many external partners have guided and assisted us in this work. We have had considerable input from WWF and we are also grateful to the other members of our International Biodiversity Panel, whose expertise and ability to challenge us has helped us to refine our approach.

This new biodiversity strategy reinforces our position as a pioneer in sustainable development within our sector. It is also demonstrates our commitment and our ability to make an ever more positive contribution to society."

Bruno Lafont Lafarge Chairman and CEO

"We are now consuming the world's resources 50% faster than the Earth can replenish them. If our demands on the planet continue to grow at the same rate, by the mid-2030s we will need the equivalent of two planets to maintain our lifestyles.

Fortunately, many companies now recognize the need to mainstream environmental and social issues into their core activities and business models.

It is in this context that WWF welcomes this new Biodiversity Strategy — developed under the recent WWF-Lafarge partnership. In particular we welcome Lafarge's leadership commitment on protected areas, as well as the new aspiration to have a net positive impact on biodiversity at the site level. We also look forward to seeing further work on important biodiversity issues, including limestone biodiversity and Environmental and Social Impact Assessments, as set out in the future work section.

The construction materials sector creates both risks and opportunities for biodiversity. By addressing both, as set out in this strategy, Lafarge and other extractive companies can further reduce their negative impacts and increase their positive impacts, and thus move towards having a net positive impact in future. We thus hope that other companies will take note of Lafarge's ambitious strategy, to help drive a sea-change in biodiversity performance across the construction materials sector."

Jean-Paul Jeanrenaud Director, One Planet Leaders WWF International

Executive Summary

- This biodiversity strategy was developed through our recent global partnership with WWF, and it explains how we are reducing biodiversity risks, and exploiting opportunities to enhance biodiversity, to thus move towards achieving our new aspiration to have a Net Positive Impact (NPI) on local biodiversity, as proxied through an improvement in habitat types compared with the pre-site situation, at an increasing number of sites in the future. In addition, Lafarge commits to not open new sites in World Heritage, or IUCN I and III areas.
- Biodiversity is essential for us all as it provides much of our food, fuel, fibre and medicine, whilst also helping to stabilise the climate, provide clean water, create and stabilise soils, pollinate crops and buffer the effects of extreme weather events. By conserving biodiversity, companies can also: gain inward investment and competitive advantage; protect operating licences, reputation and staff morale, and; avoid regulatory and other business risks.
- Lafarge aspires to have a biodiversity NPI, mainly at the site level. This means using existing
 tools and processes to reduce site biodiversity risks, and exploit opportunities to enhance
 biodiversity, so that habitat types after a site has been closed and rehabilitated are improved
 compared with the pre-site situation. Although this will not be possible at all our sites –
 particularly some older sites we will be developing a target to increase the % of sites that
 achieve it, once we have defined an appropriate and robust methodology.
- Our sites can cause both direct and indirect biodiversity risks, including: habitat loss and fragmentation; species mortality and stress, and; the spread of invasive exotic species. These should be identified, particularly by an Environmental and Social Impact Assessment (ESIA), and addressed via the Mitigation Hierarchy: (1) Avoid; (2) Minimise; (3) Reverse.
- Fortunately, our sites can also help to enhance local biodiversity, including by creating and improving habitats, influencing others (e.g. farmers, foresters and other operators) and educating others (e.g. residents, staff and local schools). These opportunities should be identified and exploited in consultation with local experts and relevant local stakeholders.
- Lafarge employs a number of tools and processes to address biodiversity issues, including: detailed Biodiversity Guidance, Feasibility Studies, stakeholder engagement, consultation of experts, ESIAs, Environmental Management Systems, Biodiversity Management Plans, Rehabilitation Plans, Geographical Information Systems and Biodiversity Monitoring.
- As of the end of 2013, Lafarge has 726 quarries worldwide, of which 85% have rehabilitation plans, and 21.7% are in, or within 500m of, internationally-sensitive areas (as defined using IBAT), 100% of which have Biodiversity Management Plans. In total, Lafarge has also completed Biodiversity Management Plans for 40% of all its guarries worldwide.
- Lafarge has a number of biodiversity targets and commitments, including on Biodiversity Management Plans, Quarry Rehabilitation Plans and Environmental Management Systems, as well as new public commitments on both paper cement bags and protected areas.
- Finally, there are a number of areas of work which we will develop in the future to further increase our biodiversity performance, including: defining, and setting a target for a % of sites to achieve, a biodiversity NPI, as proxied through habitat types; creating new guidelines and a quality-control system for ESIAs; creating a target for increasing <u>FSC</u> sourcing of paper cement bags; developing and sharing best practice on both limestone biodiversity and urban biodiversity, and; creating guidelines on biodiversity stewardship.

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Glossary of Terms

Term/Acronym	Definition
Biodiversity	The natural variety of life on earth, including of species and ecosystems
Biodiversity stewardship	Working with local actors to increase combined biodiversity performance
CSI	Cement Sustainability Initiative (see: www.wbcsdcement.org)
Ecosystem	A biological community and its physical environment
ESIA	Environmental and Social Impact Assessment
FSC	Forest Stewardship Council (see: www.fsc.org)
Habitat	The natural and physical space that an organism needs to survive
Habitat fragmentation	The breaking up of a habitat area into smaller, more isolated parts
IBAT	Integrated Biodiversity Assessment Tool (<u>www.ibatforbusiness.org</u>)
Induced development	Development in the surrounding area that occurs as a result of a site
Invasive exotic species	A non-native species that spreads uncontrollably, impacting biodiversity
IUCN	International Union for the Conservation of Nature (www.iucn.org)
IUCN Red-list species	Species recognised by IUCN as threatened with global extinction
KPI	Key Performance Indicator
Lafarge site	A quarry, cement works, ready-mix or other site operated by Lafarge
Limestone biodiversity	Biodiversity that is typically found in a limestone (e.g. Karst) area
NPI	Net Positive Impact, in terms of improving habitat types at the site level
Sacred natural site	Area of land/water with special spiritual significance (sacrednaturalsites.org)
Species	A group of organisms which can inter-breed to produce viable off-spring
Stakeholder	A person/group who have an interest in a certain activity or decision
UEPG	European Aggregates Association (see: www.uepg.eu)
Urban biodiversity	Biodiversity that can potentially be integrated into the urban environment
WWF	World Wide Fund for Nature (see: www.panda.org)

Introduction

Biodiversity is good for business. Companies, and the individuals that they employ, sell to and rely on, could not survive without the food, fuel and fibre, clean air and water, health and many other ecosystem services that biodiversity provides worldwide. Similarly, by actively protecting and enhancing biodiversity, companies can: gain inward investment and competitive advantage; protect operating licences, reputation and staff morale, and; avoid regulatory and other business risks.

Biodiversity is short for "Biological Diversity", and encompasses the natural variety of life on earth, including at the level of species (e.g. specific plants, animals or birds) and ecosystems (e.g. forests, plains, coral reefs, lakes etc.). This natural variety has evolved over many millions of years such that once a particular species is lost, it is lost forever, and once a particular ecosystem is lost or damaged, many different species may no longer have a place in which to live or breed.

Biodiversity has been declining massively over recent decades, due to a combination of: habitat loss and fragmentation (e.g. deforestation, infrastructure development and farming intensification); species mortality and stress (e.g. from pollution, over-fishing and over-hunting), and; the spread of invasive exotic species (e.g. Japanese knotweed in Europe and the US). Moreover, industry has contributed to this decline (e.g. through land-clearance, resource use and induced development).

Fortunately, all is not lost. Companies – along with individuals and governments – can do a lot to reduce their impact on biodiversity (e.g. by minimising pollution and resource use, and avoiding the most sensitive areas), whilst also working to enhance biodiversity (e.g. by restoring biodiversity at a site to a level beyond that which existed pre-site). Moreover, it is the purpose of this strategy – developed through our recent partnership with WWF – to explain how Lafarge will achieve this, built around our new aspiration to have a Net Positive Impact on biodiversity (see section 1).

Lafarge is a world leader in building materials, with over 700 quarries, 150 cement plants and grinding plants and 1,000 ready mix and asphalt sites in 62 countries. Achieving a Net Positive Impact on biodiversity will thus be a challenge in the future. However, the size and scope of Lafarge also offers considerable opportunities for us to contribute to efforts to not only reduce, but to also actively reverse, the ongoing decline in global biodiversity.

1. Biodiversity Aspiration

Lafarge aspires to have a **Net Positive Impact (NPI)** on biodiversity, as proxied through an improvement in habitat types at the site level. This means reducing site biodiversity risks (see section 2), and exploiting opportunities to enhance local biodiversity (see section 3), so that habitat types are improved after a site has been closed and rehabilitated, compared with the immediate pre-site situation. This will be achieved partly through our new commitment on protected areas (see section 6), as well as through a number of existing tools/processes (see section 4) including: appropriate site location and design (including via a robust ESIA); best practice in site management (including via a robust Environmental Management System and a robust Biodiversity Management Plan), and; good site rehabilitation (via an appropriate Rehabilitation Plan). Finally, this aspiration is focused at the site level, as this is the level at which we have the most impacts on, and also the most opportunities to enhance, biodiversity, in partnership with local stakeholders.

Although some of our sites have undoubtedly already achieved such a biodiversity NPI, more work is needed to define and measure it, and to set a challenging target for increasing the percentage of sites that achieve it, in future (see section 7). It should also be noted that it will not be possible to achieve a biodiversity NPI at all our sites, particularly some of our older sites, where significant biodiversity impacts may have occurred in previous decades, which cannot now be fully reversed.

2. Biodiversity Risks

The first and most important step in addressing biodiversity issues is to identify and address the full range of biodiversity risks that may be caused by a site. This should be done at all sites, and particularly as part of a site's Environmental and Social Impact Assessment (ESIA), Environmental Management System (EMS) and Biodiversity Management Plan (BMP), (see section 4).

Potential biodiversity risks will vary considerably across Lafarge sites (e.g. given variations in the size and type of sites, and local biodiversity sensitivity). However, site biodiversity risks can be usefully grouped into three main types: **habitat loss and fragmentation**; **species mortality and stress**, and; the spread of **invasive exotic (i.e. non-native) species**. Moreover, as described below, each of these types of site biodiversity risks can be either *direct* (i.e. caused by the site itself) or *indirect* (i.e. caused by others whose behaviour has in turn been influenced by the site).

Type of Biodiversity Risk	Examples of <i>Direct</i> Risks	Examples of <i>Indirect</i> Risks
Habitat Loss and Fragmentation ¹	Land cleared for the site leads to habitat loss and/or fragmentation.	Increases in land-clearance for farming in areas "opened up" by site access roads.
	Site machinery, traffic or workers increase risk of local forest fires.	Site encourages further local industrial development and thus habitat loss.
	Roads, powerlines and/or pipelines built for site fragment habitats.	Site workers living nearby clear land for small scale agriculture and/or homes.
Species Mortality and Stress	Air, water and/or noise pollution caused by the site and site traffic.	Increases in hunting or fishing in areas "opened up" by access roads to site.
	Changes to off-site water flow or water levels caused by the site.	Site workers living on site or nearby engage in fishing, hunting or forestry.
	Powerlines constructed for site cause mortality of large birds.	Site workers living on site or nearby cause water pollution through sewage.
Invasive Exotic Species ²	Invasive exotic seeds brought in on site machinery and/or vehicles.	Roads created to access site facilitate the spread of invasive exotic species.
	Land cleared for site more easily invaded by invasive exotic species.	People visiting the site inadvertently bring invasive exotic seeds with them.
	Species planted on site are not local native, and then spread.	Fishermen using a quarry lake introduce exotic fish which then spread elsewhere.

Note: the examples given above are <u>not</u> exhaustive, and it is important that each Lafarge site conducts its own biodiversity risk assessment (especially during an ESIA) to determine the potential direct and indirect impacts the site may have upon local biodiversity in terms of: habitat loss and fragmentation; species mortality and stress, and; the spread of invasive exotic species. Moreover, in accordance with the so-called "mitigation hierarchy", identified risks should be: firstly, avoided as much as possible (e.g. by altering site location and/or design); secondly, minimised (e.g. through good site management), and then; thirdly, reversed (e.g. via site rehabilitation).

¹ Fragmented habitats support less biodiversity as they are smaller, more isolated and less resilient to change.

² Such species compete with, displace and/or predate native species, and can damage whole ecosystems. Japanese knotweed shown, in the UK. For more country-specific information, see: http://www.issg.org/database/welcome/

3. Biodiversity Opportunities

Beyond identifying, avoiding, reducing and reversing biodiversity risks (see section 2), individual Lafarge sites could and should also identify and exploit opportunities for enhancing local biodiversity, particularly as part of their Biodiversity Management Plan and Rehabilitation Plan (see section 4). Moreover, by doing so, many sites will be able to achieve an overall biodiversity NPI.

As with risks, biodiversity opportunities will vary considerably across sites, given variations in sites' size, location and type. However, as shown in the table below, such opportunities can be grouped into three main types: **creating/improving habitats**; **influencing others**, and; **educating others**.

Type of Biodiversity Opportunity **Examples of such opportunities** Creating/Improving Habitats³ Quarrying activity creates new natural habitats that were not present pre-site, e.g. lakes, ponds, cliffs etc. Quarry rehabilitation activity improves habitat types compared with the immediate pre-site situation. New micro-habitats created on smaller sites, e.g. pollinator gardens, green roofs, nature ponds, window boxes etc. Influencing Others Farmers working on site and in the local area encouraged to avoid pesticides and fertilizers, and become organic. Foresters working on site and in local area encouraged to improve their practices, and become FSC-certified. Other operators, governments and national associations positively influenced through joint biodiversity projects. **Educating Others**⁴ Visitors, local school children, residents and staff educated about local biodiversity on site and in the surrounding area by: providing nature trails and notice boards; giving biodiversity presentations, and; disseminating leaflets on biodiversity and how they, and Lafarge, can conserve it. Involving local schools, universities, residents and youth groups (e.g. scouts) in site nature projects and monitoring.

Note: the examples of biodiversity opportunities given above are <u>not</u> exhaustive and individual sites should identify their own particular biodiversity opportunities – on site and in the immediate surrounding area – ideally in consultation with a local biodiversity NGO and/or expert. It should also be stressed that first priority should still be given to avoiding, reducing and reversing biodiversity risks (see section 2), especially where funding and/or work time may be limited, and especially where a site may create large and/or irreversible impacts on biodiversity (e.g. impacting pristine habitats or particularly rare species). However, once such risks have been addressed, going further by exploiting opportunities for enhancing biodiversity may allow a site to have a NPI⁵.

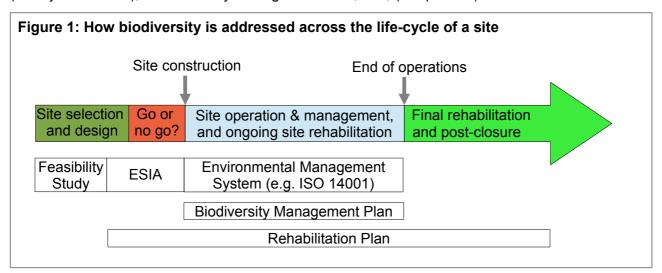
³ Example pictured shows a new lake created at Lafarge's rehabilitated South Pit Quarry in Canada.

⁴ Example pictured shows the visitors centre at Lafarge's rehabilitated Bamburi Quarry in Kenya.

⁵ In terms of improving habitat types at the site level, compared with an estimation of the pre-site situation.

4. Biodiversity Tools/Processes

Biodiversity should be addressed **across the life-cycle** of a Lafarge site, including within: site selection and design; the Go / No Go decision; site operation and management (including ongoing site rehabilitation), and; final rehabilitation and post-closure. As shown below – and described in more detail in the subsequent table – this involves a number of tools including: a Feasibility Study; an Environmental and Social Impact Assessment (ESIA); an Environmental Management System (ideally ISO 14001); a Biodiversity Management Plan, and; (for quarries) a Rehabilitation Plan.



In parallel with, and to help inform the use of, these tools, a number of further tools and processes also need to be employed, to fully address biodiversity risks and opportunities (see sections 2 & 3), including: the Lafarge Biodiversity Guidance; Expert Consultation; Stakeholder Engagement; GIS; the Long Term Biodiversity Index; the Monitoring Toolkit; Biodiversity Education, and; Reporting. Employed together, these tools/processes can help at least some sites achieve a biodiversity NPI.

Biodiversity Tool/Process	Description
Biodiversity Guidance	Comprehensive guidelines – produced by Lafarge and WWF International – for how <u>all</u> Lafarge sites can and should address biodiversity, including recommended goals, case studies and a description of each of the tools and processes listed below. These guidelines are now <u>available online</u> .
Regulations and External Plans	Regulations and external plans are the most important reference in identifying and addressing biodiversity risks and opportunities. This includes abiding fully with regulations, e.g. on water, pollutants, invasive species and protected species and habitats, and aligning site plans with local/national plans.
International Biodiversity Panel	At the international level, and in addition to our recent partnership with WWF, the company's work on biodiversity is also guided by a panel of independent experts , which currently includes representatives from the Wildlife Habitat Council, IUCN France, the Ramsar Convention and Equilibrium Research.
Consulting Experts	It is important that local experts are consulted at regular steps across the lifecycle of a site, to help identify biodiversity risks and opportunities, and also to help guide the implementation of the various biodiversity tools. These include: local universities, NGOs, consultants, regulators, protected area authorities etc.

Stakeholder Engagement	Stakeholder engagement is a general priority for all our sites and is particularly important when addressing biodiversity issues, to ensure that this is done effectively and appropriately. Stakeholders may include local residents, schools, farmers, NGOs, hunters, landowners and local governments.
Feasibility Study	Undertaken early on in the proposal stage for a new site – before significant investments have been made – to determine whether or not it is appropriate to advance the proposal, including broad consideration of biodiversity (e.g. protected areas and vulnerable habitats), as informed by GIS and experts.
Environmental & Social Impact Assessment (ESIA)	Determines the more precise environmental impacts caused by a site (including on biodiversity), including an inventory of species and habitats present, as well as likely impacts upon them. CSI guidelines on ESIAs already exist, and Lafarge ESIA guidelines will be developed soon (see section 7).
Biodiversity Management Plan (BMP)	Improves site management by reducing negative impacts and exploiting opportunities to enhance local biodiversity, informed by the site ESIA, EMS and/or Rehabilitation Plan, and guided by local expert and stakeholder consultation, and the Lafarge BMP criteria and Excel planning tool.
Environmental Management System (EMS)	The main way that a site's management addresses environmental issues (including biodiversity), informed by the site ESIA as well as any BMP, and – ideally – adhering to international standards (i.e. ISO 14001). Lafarge has EMS guidelines to help ensure biodiversity is adequately addressed in an EMS.
Quarry Rehabilitation Plan	Any new Lafarge quarry has to have a rehabilitation plan in place before operations begin. These address biodiversity impacts and opportunities, as well as other issues, and are guided by local expert and stakeholder, the site's BMP, EMS and ESIA, and Lafarge's own rehabilitation plan guidelines.
Geographical Information Systems (GIS)	GIS tools can be used at the international, national and site level to inform site selection, design, management and rehabilitation, in parallel with site-level surveys. This includes IBAT ⁶ , which provides information on protected areas, as well as the distribution of, and important areas for, IUCN red list species.
Long Term Biodiversity Index (LBI)	A tool developed by Lafarge to help measure a site's biodiversity performance over time. The LBI produces an index score based on surveys of a number of taxonomic groups , as appropriate for the particular site, which can be tracked over time. Ideally, the baseline for the index should be the pre-site situation.
Biodiversity Monitoring Toolbox	7 tools, including the LBI, simpler single and multi-species surveys, the threat reduction index, local expert judgement, photographic surveys, and extensions to an ESIA, to allow all sites to have at least one method for measuring biodiversity performance over time, ideally against a pre-site baseline.
Biodiversity Reporting	Important for transparency as well as to motivate, and to allow others to learn from, Lafarge's work on biodiversity. This includes, at the international level, audited annual reports and information on the company's website , as well as information shared via stakeholder and public engagement at the site level.

⁶ Integrated Biodiversity Assessment Tool – see: <u>www.ibatforbusiness.org</u>

5. Screening Results

Screening	No. of sites in 2013	% of sites in 2013
Quarries in/near internationally biodiversity sensitive areas ⁷	157	22%
Quarries in/near internationally sensitive areas with a BMP	157	100%
Quarries in/near locally biodiversity sensitive areas ⁸	142	20%
Quarries in/near locally sensitive areas with a BMP	52	37%
Quarries with habitat baseline information	631	88%
Quarries implementing a Rehabilitation Plan	613	85%

6. Targets and Commitments

Target/Commitment	Description
Biodiversity Management Plans (BMPs)	100% of quarries and cement works to be implementing a BMP in line with Lafarge criteria by 2020, and by 2015 for quarries and cement works in local sensitive areas.
Rehabilitation Plans	100% of quarries to be implementing a rehabilitation plan in lines with Lafarge criteria by 2015.
Environmental Management Systems (EMSs)	100% of sites to have an EMS by 2015, and 100% of EMSs to be of ISO 14001 standard by 2020.
Protected Areas	No new ⁹ sites created ¹⁰ within World Heritage, IUCN I or IUCN III sites. New sites in IUCN II and IV subject to a public consultation showing compatibility with the area's conservation objectives and a likely Net Positive Impact on the protected area post restoration of the site. In other protected areas, any new sites will be subject to a robust ESIA showing compatibility with the protected area's conservation objectives.
Baseline information	100% of quarries and cement works to have habitat baseline information (estimating the pre-site situation) by 2015.
Paper cement bags	A preference for FSC paper, and a requirement that suppliers prove that paper used is legally and uncontroversially sourced.

⁷ Defined as quarries in, or within 500m of, an IUCN I-VI, Ramsar, IBA (Important Bird Area) or Natura 2000 site.

⁸ Defined as sites in, or whose perimeter is within 500m of, a locally, regionally or nationally recognised protected area, and/or sites containing: a habitat that is protected at the regional, national or international level, and/or; a habitat that is important to support one or more species recognised at the regional, national or international level as protected, threatened and/or endangered, and/or; a naturally-occurring limestone cave or caves.

⁹ Expansions of <u>existing</u> sites within or into a World Heritage or IUCN I-IV site will be subject to a robust ESIA showing that this expansion is compatible with the conservation objectives of the protected area in question.

¹⁰ Sites purchased as part of a major acquisition of a company (share or asset purchase) located in a World Heritage or IUCN I or III site will be reviewed on a case by case basis.

7. Future Planned Work

Future Work Area	Description
NPI	Defining how a biodiversity NPI ¹¹ , as proxied through habitat types, will be measured at sites, and creating a new KPI and target for achieving a biodiversity NPI at a certain percentage of our quarry sites in future.
FSC	Defining a new target for increasing the sourcing of FSC paper for cement bags across the group, as well as within some particular countries.
ESIAs	Defining new ESIA guidelines, including regarding biodiversity and Sacred Natural Sites, and setting up quality-control procedures and a new KPI.
Limestone Biodiversity	Defining and sharing best practice for how the management of limestone quarries can be made more compatible with limestone biodiversity.
Biodiversity Stewardship	Creating guidelines for how sites can work with others to improve overall biodiversity performance (e.g. farmers, foresters, local nature projects etc.).
Urban Biodiversity	Defining and sharing best practice for how biodiversity conservation and enhancement can be integrated into urban developments and construction.
Biomass use	Application of Lafarge's new standard for biomass as an alternative green fuel, so as to minimise risks to, and ideally enhance, local biodiversity.
Ecosystem Services Review	Creating a position paper on ESR, to examine its advantages and disadvantages, and then (if appropriate) to develop ESR guidelines.
Construction Materials Sector	Learning from biodiversity work across the construction materials sector, and encouraging other operators to adopt best practice in biodiversity ¹² .

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¹¹ In terms of improving habitat types at the site level, compared with an estimation of the pre-site situation.

¹² Particularly via our ongoing participation in sector-wide fora; e.g. UPEG, CSI and national associations.