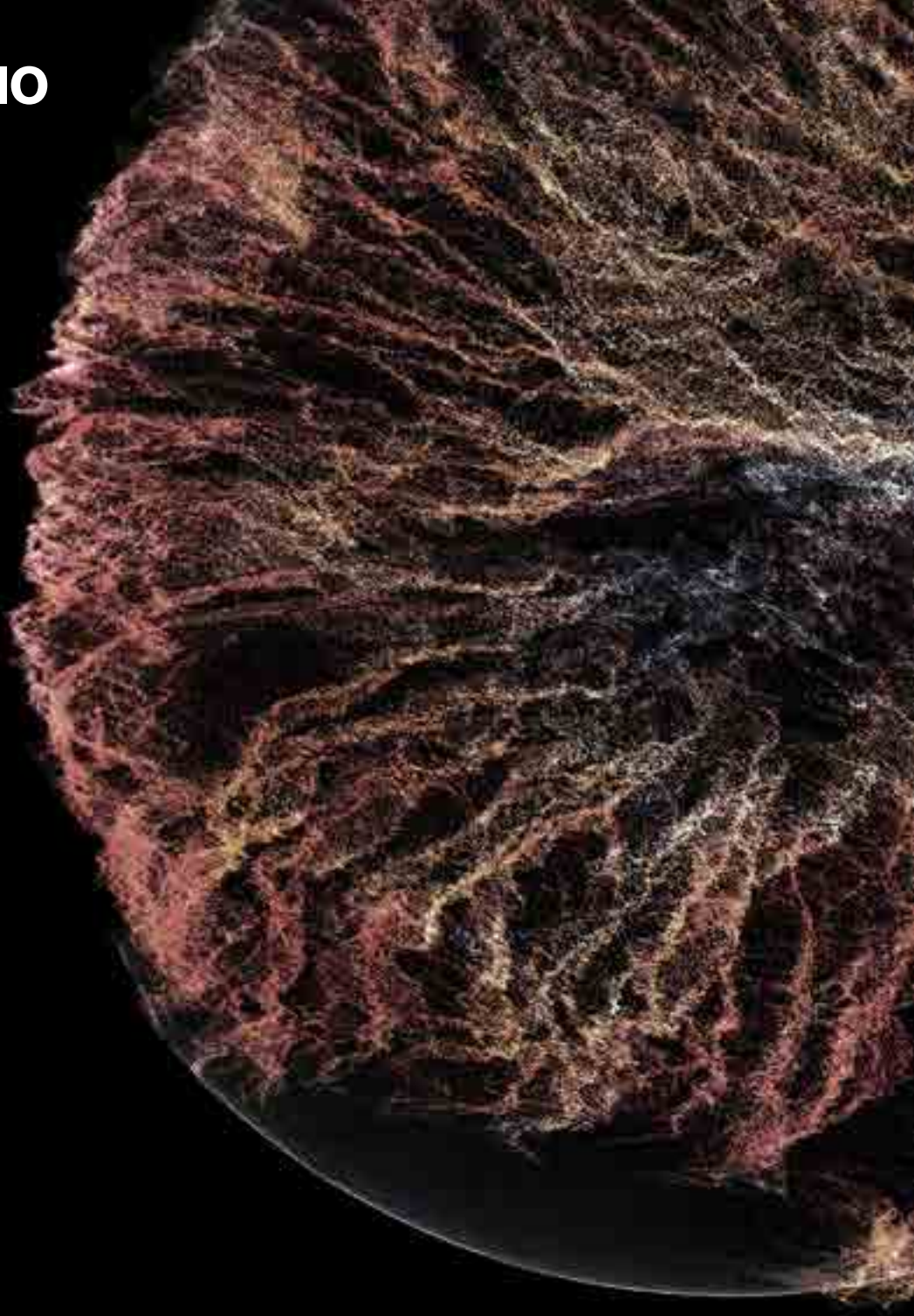
PORTFOLIO EARTH



Bankrolling Extinction

THE BANKING SECTOR'S ROLE IN THE GLOBAL BIODIVERSITY CRISIS

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The global ecosystem is rapidly approaching a planetary tipping point.

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About us

portfolio.earth is a new initiative born out of rising concerns that our finance sector is not taking the human-induced sixth mass extinction seriously and is actively providing capital to sectors that governments and scientists agree is deemed harmful to biodiversity.

portfolio.earth is a collaborative effort - a collective of individuals working with others to take on the finance industry’s role in contributing to the destruction of nature.

We aim to bring together diverse voices to amplify the incredible pressure that is mounting upon the finance industry and its role in bankrolling extinction, find new ways to tell this story, and double down on the changes we need to see.

For more information please contact
info@portfolio.earth or visit our website

Contents

1.0 Executive Summary

We are currently in the midst of a mass extinction event. Termed the ‘Anthropocene Extinction’, this is the first of its kind to be caused by humans. Humans have impacted nearly every corner of the planet and are approaching planetary boundaries which could take millions of years to recover from.[1] Scientists are warning of ‘biological annihilation’.[2] While governments and companies have been the focus of attention on this issue, actors in the finance sector have largely evaded scrutiny until recently.

This report shows how banks are funding the destruction of nature.

The financial sector is bankrolling the mass extinction crisis, while undermining human rights and indigenous sovereignty. This report calls for:

In 2019, the world’s largest banks invested more than USD 2.6 trillion (equivalent to Canada’s GDP) in sectors which governments and scientists agree are the primary drivers of biodiversity destruction.

Banks to disclose and radically reduce their impact on nature and stop finance for new fossil fuels, deforestation, overfishing and ecosystem destruction.

Importantly, none of the banks assessed have chosen to put sufficient systems in place to monitor or measure the impact of their loans on biodiversity, nor do they have comprehensive policies to halt it.

Governments to stop protecting the role of banks in biodiversity destruction and rewrite the rules of finance to hold banks liable for the damage caused by their lending.

Banks play a key role in a financial system that free rides on biodiversity, and the regulators and rules which govern banks currently protect them from any consequences.

People everywhere to have a say in how their money is invested, and a right to stop banks from causing serious harm to people and planet.

Why this matters

Human life, and our survival, depends on our environment. Covid-19 has shown us that nature underpins the functioning of our health, societies, and economies. The risk of these sorts of diseases is kept in check by healthy environments and diverse species.[3] When we radically alter nature, we risk creating the conditions in which pandemics emerge.

Environmental destruction can no longer be seen as an unfortunate by-product of economic development, quite the reverse. Our abusive relationship with nature is contributing to an USD 8 trillion[4] hole in our global economy, rising unemployment, and social inequality. Recent analysis suggests that Covid-19 has reversed the global development agenda back 25 years in just 25 weeks.[5] If we protect nature, nature protects us.

Half of the world's GDP is indebted to nature[6] and the services it provides such as pollination, water quality, and disease control. The dependence of many more industries is hidden in their supply chains. Despite this, the global economy continues to free ride on nature. For the first time, this report attempts to quantify the loans and underwriting provided by some of the largest banks in the world to companies operating in economic sectors that governments and scientists agree are primary drivers of biodiversity loss.

Most of the funding assessed (66 per cent) was related to activities that directly cause biodiversity loss (e.g. fishing, mining) and 34 per cent was invested in companies which indirectly drive biodiversity loss (e.g. by driving demand along the supply chain from retail or processing and trading of commodities, such as construction which creates demand for raw materials).

Analysis of bank policies regarding biodiversity has shown that not a single one of these banks has sufficient systems in place to measure, report, and radically reduce the environmental impacts caused by its finance activities. Put simply, the banks are unwilling and have not prepared to tackle the biodiversity crisis.

Other key findings of the banks assessed in this report include:

- On average, each of the 50 banks included in the research were linked to finance with biodiversity risk to the tune of USD 52 billion each. This ranges from more than 210 billion for the largest investor to 1.3 billion for the smallest.
- The top three of the 10 banks with the largest exposure to biodiversity risks were headquartered in the USA. Around 26 per cent of all loans and underwritings by the 50 banks were linked to Bank of America, Citigroup and JP Morgan Chase. Wells Fargo, another American bank, was the fifth largest investor in industry sectors with high biodiversity risks.
- Among the top ten banks assessed were also three Japanese banks (Mizuho Financial, Mitsubishi Financial and the Sumitomo Mitsui Banking Corporation).
- BNP Paribas, HSBC, and Barclays were the three European banks within the top ten assessed.
- A raft of Chinese banks, considered the world's largest banks, can be found further down the list.
- Thirty-two per cent of all loans and underwriting were associated with infrastructure, 25 per cent with metal and mineral mining, and a further 20 per cent with fossil fuels.
- While food production (agriculture and fisheries) was only connected to 10 per cent of all investments, this sector is considered to have the largest impact on global biodiversity.[7]

To prevent extinction, banks have to stop funding it.

Scientists and governments agree[8] that the global food production system, forestry, mining, fossil fuels, infrastructure, tourism, and the relocation of goods and people have all been identified as primary drivers of the global extinction crisis. Even though many of these activities are carried out by companies, it is the finance sector that bankrolls and enables this activity.

Banks make decisions and invest in sectors which governments and scientists agree are driving the devastation of our planet and societies. Recent scandals[9] have shown that left to themselves, some of the largest banks in the world will game the system. Other actors within the financial sector are also likely to be complicit in funding the sectors that drive the destruction of nature.

Governments and scientists agree that to halt and reverse the current biodiversity crisis, nothing short of transformative change[10] is required. Concrete action must come from all parts of our political economy – banks, regulators, other financial actors, the judiciary, governments, and citizens. All members of the financial system, including those that govern and drive it, must act to create the right rules, responsibilities and culture to halt and reverse the decline of nature.

The current climate, Covid-19, and ecological crises are radicalising communities and activists. The scrutiny the finance industry and other economic actors are facing about their contribution is mounting (see Notable Examples of Recent Scrutiny in Section 3). In limited cases, banks and the finance industry have begun to respond by measuring their exposure. New approaches to biodiversity loss disclosure[11] and new initiatives such as the Finance for Biodiversity Banking pledge[12] have been launched recently. These developments are being watched and cautiously welcomed. But they are no substitute for urgent transformative action from banks and the governance system they operate in.

Demands

The financial sector is bankrolling the mass extinction crisis, while undermining human rights and indigenous sovereignty. This report calls for:

Banks to disclose and radically reduce their impact on nature and stop finance for new fossil fuels, deforestation, overfishing and ecosystem destruction.

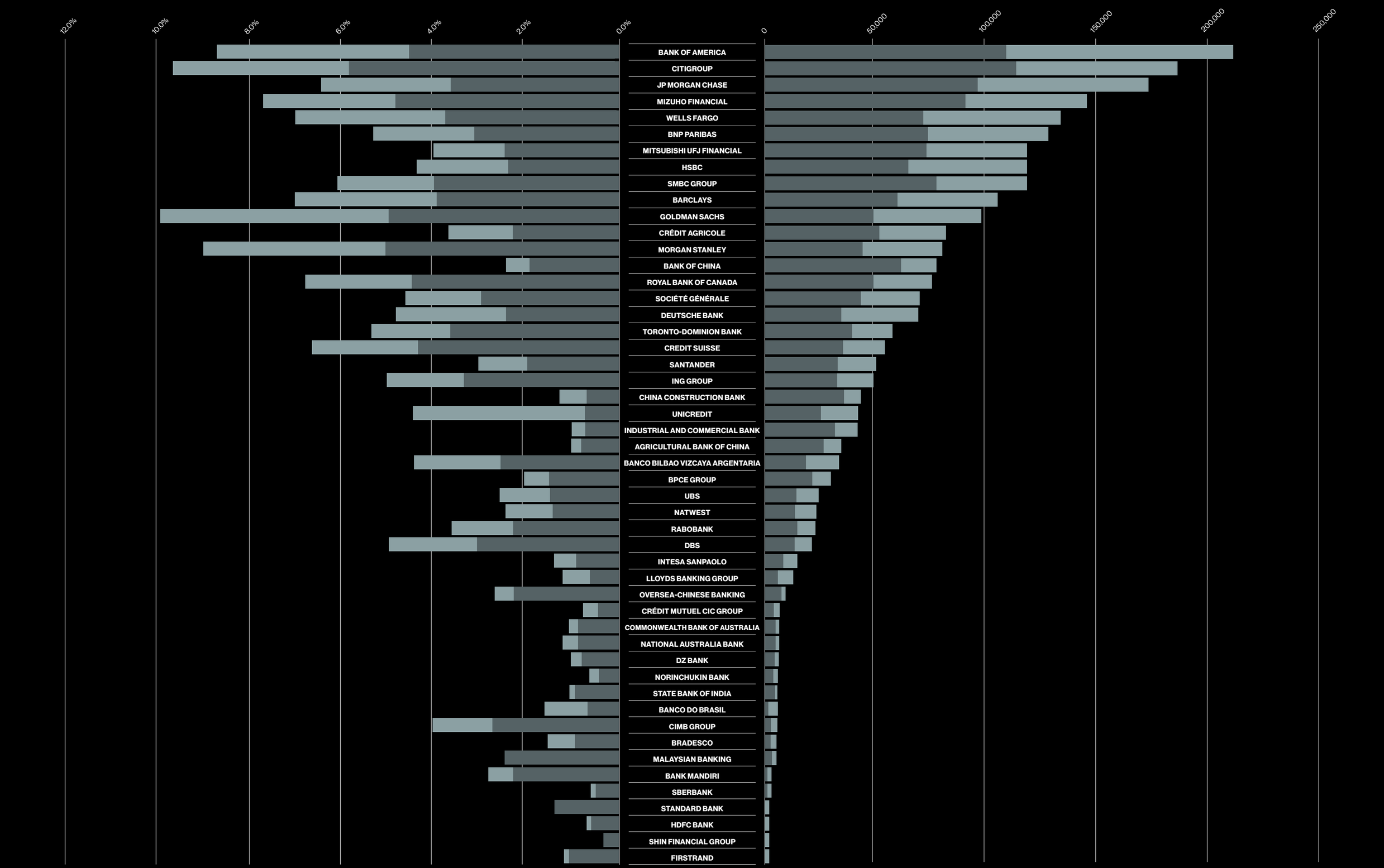
Governments to stop protecting banks' role in biodiversity destruction and rewrite the rules of finance to hold banks liable for the damage caused by their lending.

People everywhere to have a say in how their money is invested, and a right to stop banks from causing serious harm to people and planet.

We cannot rely on banks to find the answer. We need a radical overhaul of how our financial system creates liability, accountability, and responsibility to protect and restore nature.

The banks are unwilling and have not prepared to tackle the biodiversity crisis.

FIGURE 1: LOANS AND UNDERWRITING BY BANKS LINKED TO DIRECT AND INDIRECT BIODIVERSITY IMPACT RISKS 2019, (MILLION USD) AND PERCENTAGE OF FINANCE AT RISK OF BIODIVERSITY IMPACTS COMPARED TO TOTAL ASSETS 2019, (MILLION USD)



1.1 The Global Biodiversity Crisis

The planet is in the midst of a major mass extinction event – the first of its kind caused by humans, and one which is threatening the biological annihilation of life on our planet. Banking and finance practices are contributing significantly to this. To date, their impact on biodiversity remains unchecked.

The world's flora and fauna continue to be in rapid decline. Three-quarters of the planet's land surface and two-thirds of its ocean areas are significantly altered. Only 13 per cent of ocean and 23 per cent of land areas are still classified as wilderness.[13]

Many international agreements have tried but not succeeded to halt and reverse biodiversity loss. Notable examples include biodiversity targets set ten years ago in Aichi (2010), the World Summit on Sustainable Development and the United Nations General Assembly endorsement of the Global Biodiversity Target held 18 years ago, and the establishment of the Convention on Biological Diversity by the Rio Earth Summit 28 years ago.

The United Nations recently found that not one of the twenty Aichi Global Biodiversity Targets agreed in 2010 have been met.[14]

The present extinction rate of species is up to 10,000 times higher than the background rate.[15] This is why scientists argue the earth is undergoing its sixth major mass extinction event in its 4.5 billion year history. The current Anthropocene Extinction is the first such event caused by a single species, humans, consciously destroying the biodiversity and ecosystem services it relies on for its own survival. It is also up to humans, and the systems they operate within, to reverse it.

More recently, the Covid-19 virus has demonstrated that the fate of our health, societies, and economies are inextricably linked to nature. Radically altering nature and reducing biodiversity risks creating conditions in which pandemics emerge.

In 2019, hundreds of experts around the world contributed to the largest assessment of global biodiversity ever carried out. The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) analysed more than 15,000 scientific publications and government sources and concluded that one million animal and plant species were now threatened with extinction, more than ever before in human history. More than 40 per cent of amphibian species, almost 33 per cent of reef-forming corals, and more than a third of all marine mammals are considered threatened today.

The IPBES report, endorsed by scientists and governments, found current policies and conservation efforts are insufficient to protect and sustainably use nature. In order to ensure the long-term sustainability of our resources and protect biodiversity, the authors of the IPBES report concluded that "transformative changes across economic, social, political and technological factors" are needed.[16]

A significant amount of biodiversity loss is driven by unsustainable business practices financed by banks and investors and fuelled by growing global demand for products. Banks are not being held accountable.

It has been estimated that unsustainable practices result in a loss of ecosystem services of between USD 4 and 20 trillion every year from land-use change alone.[17] Industry sectors with particularly high biodiversity impacts include food production (fisheries, aquaculture and agriculture), mining and the extraction of fossil fuels, infrastructure, tourism, and the movement of people and goods around the world via transport and logistics.

Under increasing public pressure to reduce the impacts of global supply chains, companies, and to a much lesser extent banks, have begun to adopt largely voluntary policies to not engage or fund some of the practices with the worst biodiversity and climate change impacts (such as deforestation to make space for palm oil, soy and beef, or refusing loans for coal, oil and gas activities in fragile eco-systems such as the Arctic).

However, many of these promises to protect nature have been woefully insufficient to stabilise biodiversity and have not been implemented successfully or widely enough to reduce the rate at which human industrial activities are driving extinction. They do not represent the transformative change of our economic system required to maintain biodiversity and the ecosystem services. Brazil is currently the only country where lender environmental liability allows for the financial institution to be held liable for environmental harm caused by the borrower, strictly and without limitation.[18]

Banks have shown reluctance to take responsibility for the impacts of their lending portfolio elsewhere. For instance, the CEO of Goldman Sachs argued in January 2020 that the bank should not decline to work on deals with companies that lack environmental credentials. He said: "Should we draw a line and say we will not raise money for a company that is a carbon company, a fossil fuel company? And the answer to that is, we're not going to do that, we're not going to draw a line."[19] Considering the unwillingness of banks to participate in a necessary, rapid shift of the banking system, legislative measures such as lender environmental liability will have to be a major component of any such transformation.

The United Nations recently found that not one of the twenty Aichi Global Biodiversity Targets agreed in 2010 have been met.

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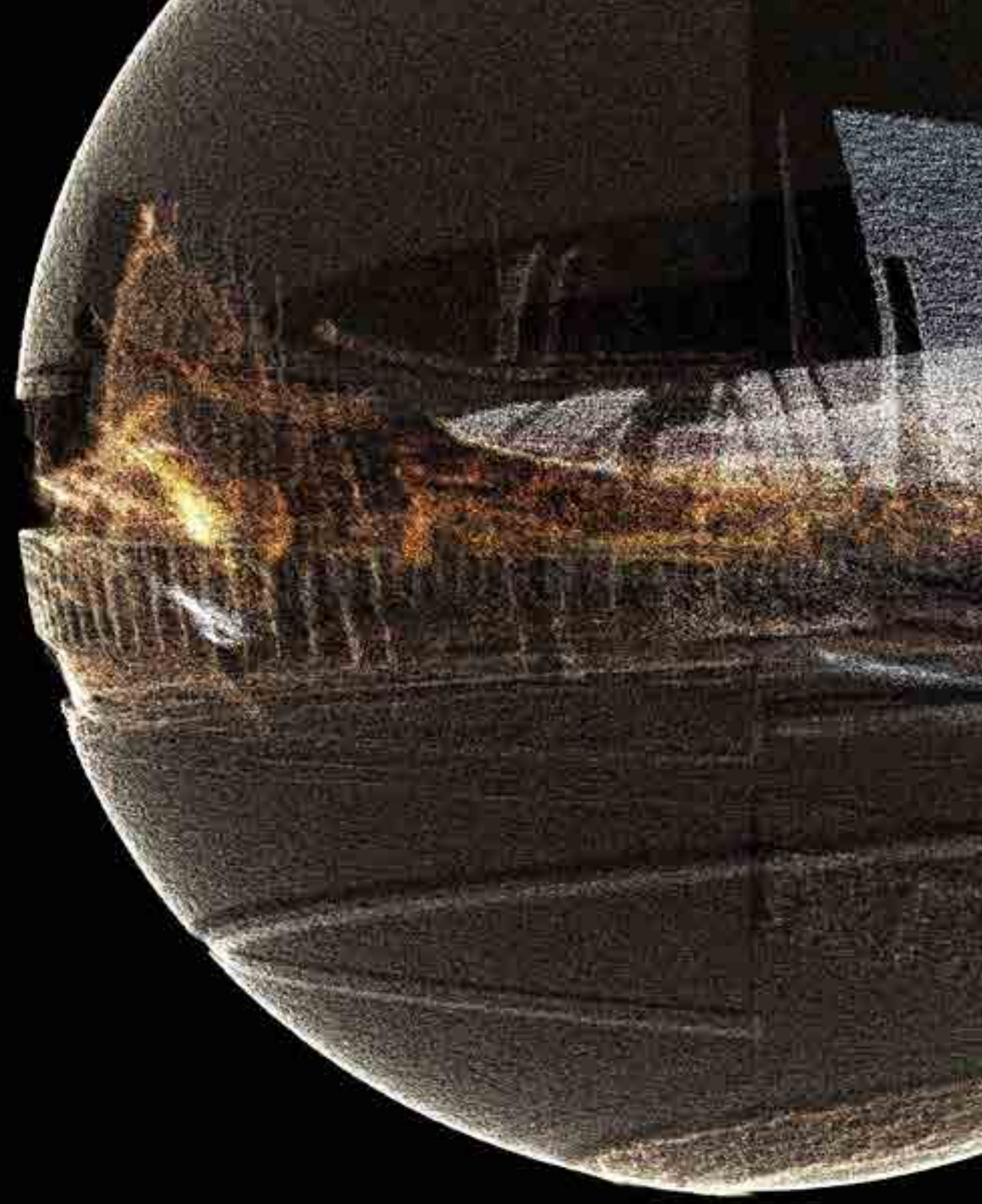
Results



2.1 Finance of Industry Sectors with Biodiversity Risks

The 50 banks included in this research report were identified by portfolio.earth and consist of the world's largest banks, as well as other banks known to operate in regions of particular importance to biodiversity.

Quantification of the Value of Finance Provided by Banks to Companies Operating in Sectors with Biodiversity Risks

The consultancy Profundo used the Refinitiv database (formerly known as Thomson Reuters Eikon) to identify and calculate corporate loans, project finance, general corporate purposes finance, share issuance and bond issuance for 72 business sectors, industry groups and industries identified by portfolio.earth as being linked to biodiversity impact risks.

The business sectors included are from the Thomson Reuters Business classification (TRBC). The loans within the business sectors were then matched to key human activities and drivers the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)[20] identified as fuelling the global biodiversity crisis.

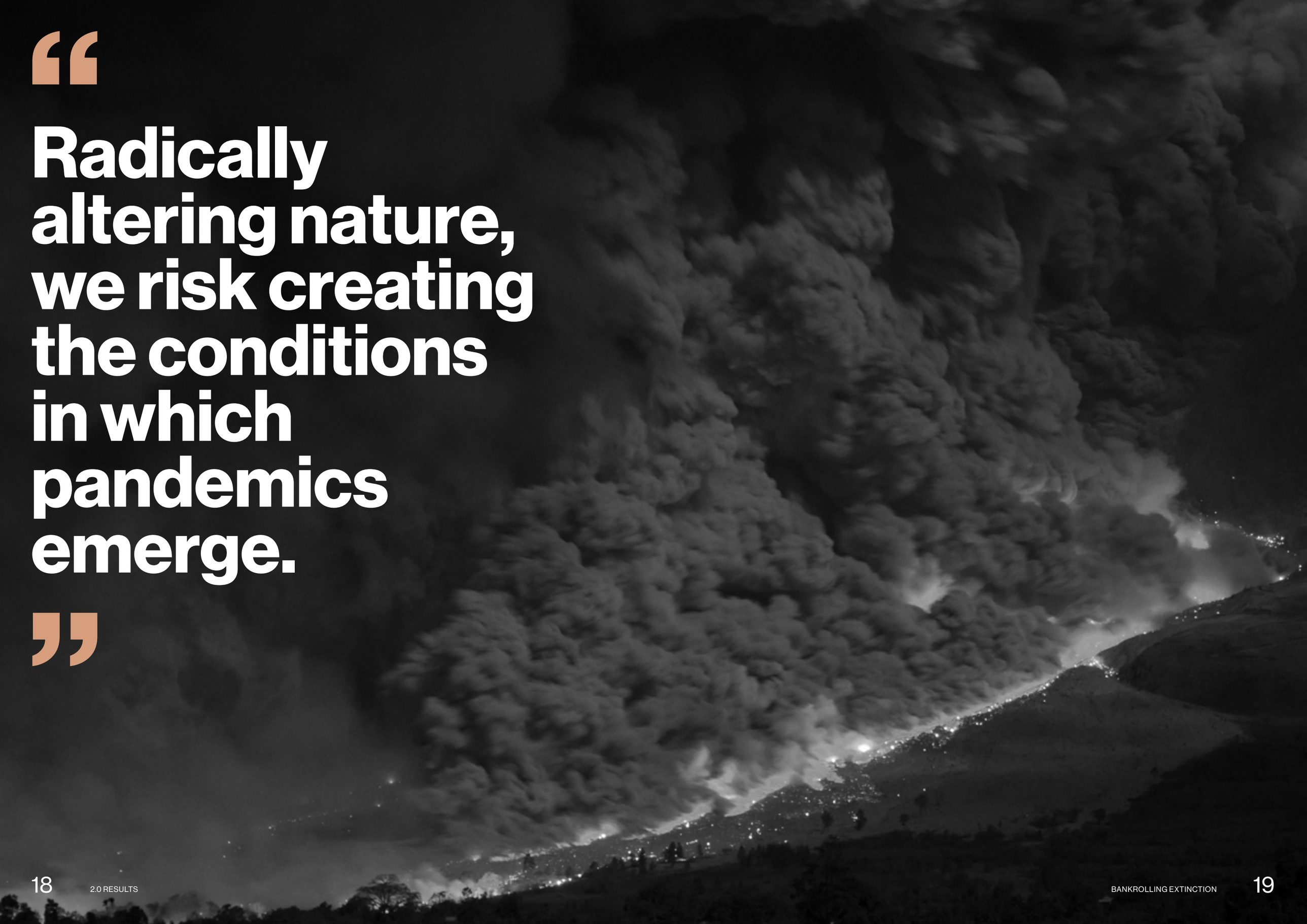
These, slightly adapted, sectors are:

- Food system and agricultural commodities
- Forestry and non-food forest commodities
- Metal and mineral mining
- Fossil fuels
- Infrastructure
- Tourism
- Relocation of goods and people

Among the banks included in this analysis are 20 European banks (linked to 36 per cent of the total finance with risk of biodiversity impact identified in this report), 18 banks in the Asia Pacific region (24.7 per cent), 8 in North America (38.7 per cent) and two each in South America (0.4 per cent) and Africa (0.1 per cent). Forty-four of the banks are amongst the largest 100 in the world by total assets, while the rest are located in key regions of particularly high biodiversity.

The Top Ten Banks

- From the top ten banks, infrastructure received the largest percentage of finance, followed by the metal and mineral mining sector, and fossil fuels. Tourism and the forestry sector accounted for the smallest percentages of the identified finance.
- Within the top ten, Japanese banks provided significantly more finance to infrastructure and mining-related industries than their counterparts headquartered in Europe and the USA.
- The three European banks within the top ten invested comparatively heavily in the food sector, while the USA banks provided slightly more finance on average to companies within the transportation and logistics sector than banks from other regions.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Radically altering nature, we risk creating the conditions in which pandemics emerge.
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TABLE 1: OVERVIEW OF INCLUDED BANKS BY TOTAL FINANCE AT RISK OF HAVING BIODIVERSITY IMPACTS (MILLION USD)

COUNTRY (HEADQUARTERS)	REGION	NUMBER OF BANKS	TOTAL FINANCE AT RISK IN 2019
USA	North America	6	877,804
Japan	Asia Pacific	4	384,256
France	Europe	5	314,739
UK	Europe	4	258,036
China	Asia Pacific	4	196,276
Canada	North America	2	133,040
Spain	Europe	2	84,848
Switzerland	Europe	2	77,802
Germany	Europe	2	75,191
Netherlands	Europe	2	72,597
Italy	Europe	2	56,222
Singapore	Asia Pacific	2	30,734
Australia	Asia Pacific	2	13,656
Brazil	South America	2	10,703
Malaysia	Asia Pacific	2	10,360
India	Asia Pacific	2	6,984
South Africa	Africa	2	3,428
Indonesia	Asia Pacific	1	2,597
Russia	Europe	1	2,270
South Korea	Asia Pacific	1	1,362

FIGURE 2: HUMAN DRIVERS OF BIODIVERSITY LOSS AS PERCENTAGE OF AT-RISK BANK FINANCE

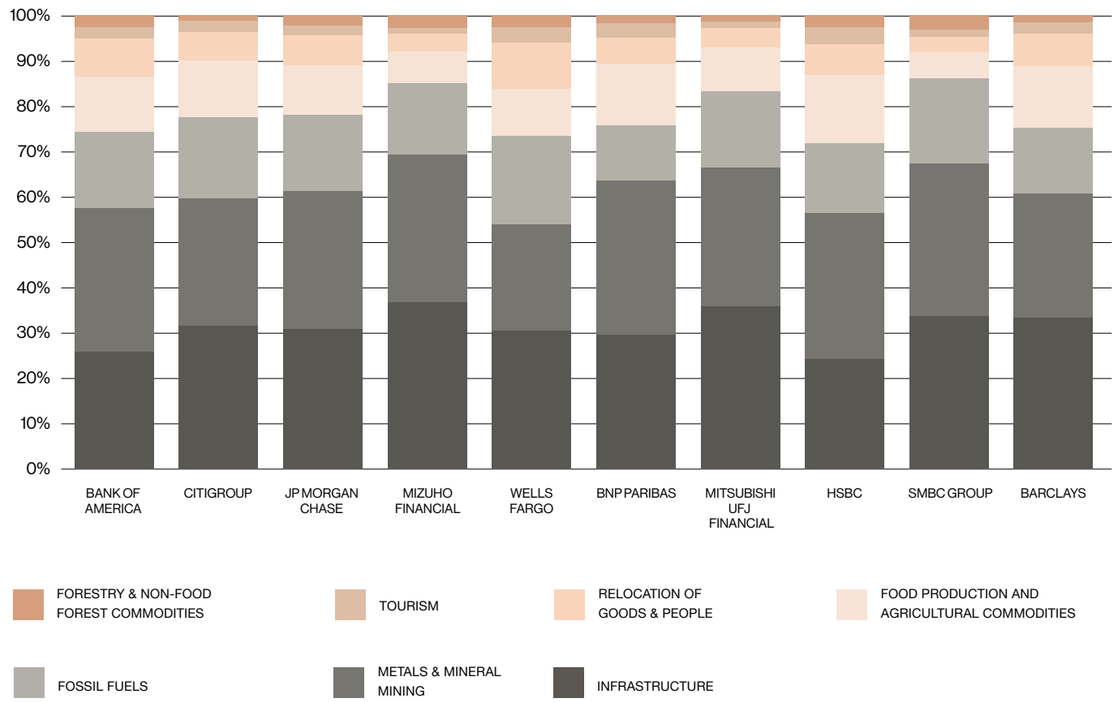
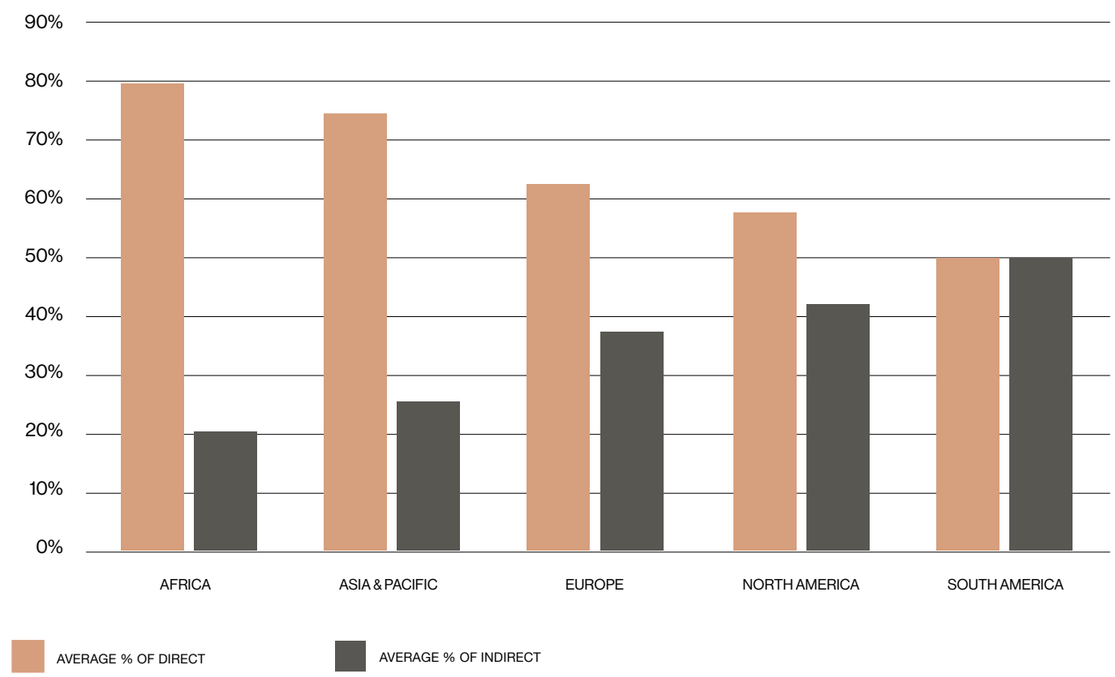


FIGURE 3: PERCENTAGE OF FINANCE LINKED OF DIRECT AND INDIRECT BIODIVERSITY RISKS BY GEOGRAPHIC REGION



Type of Biodiversity Impact

Finance linked to the drivers of biodiversity loss was classified as having either direct or indirect impacts on biodiversity. For instance, gold mining is considered to be at risk of having direct impact while the use of gold in the electronics industry may indirectly impact biodiversity due to the value chain demands of the commodity.

Comparing percentages of direct and indirect impacts on biodiversity in relation to the total assets of the banks within specific geographic regions:

- Banks in Africa and the Asia Pacific Region invested more heavily in industries linked to direct impacts than banks headquartered in North America or Europe.
- There was a near even split between direct and indirect impact risks for South American banks.
- Banks in China exhibited particularly high levels of financing with risk of direct biodiversity impact (more than 80 per cent of all finance). This was eclipsed by banks in India and Russia but only one bank from each of these countries was included in this research.
- The one South Korean bank included on the top 50 list had the smallest risk of direct impacts but the highest risk of funding indirect impacts on biodiversity.

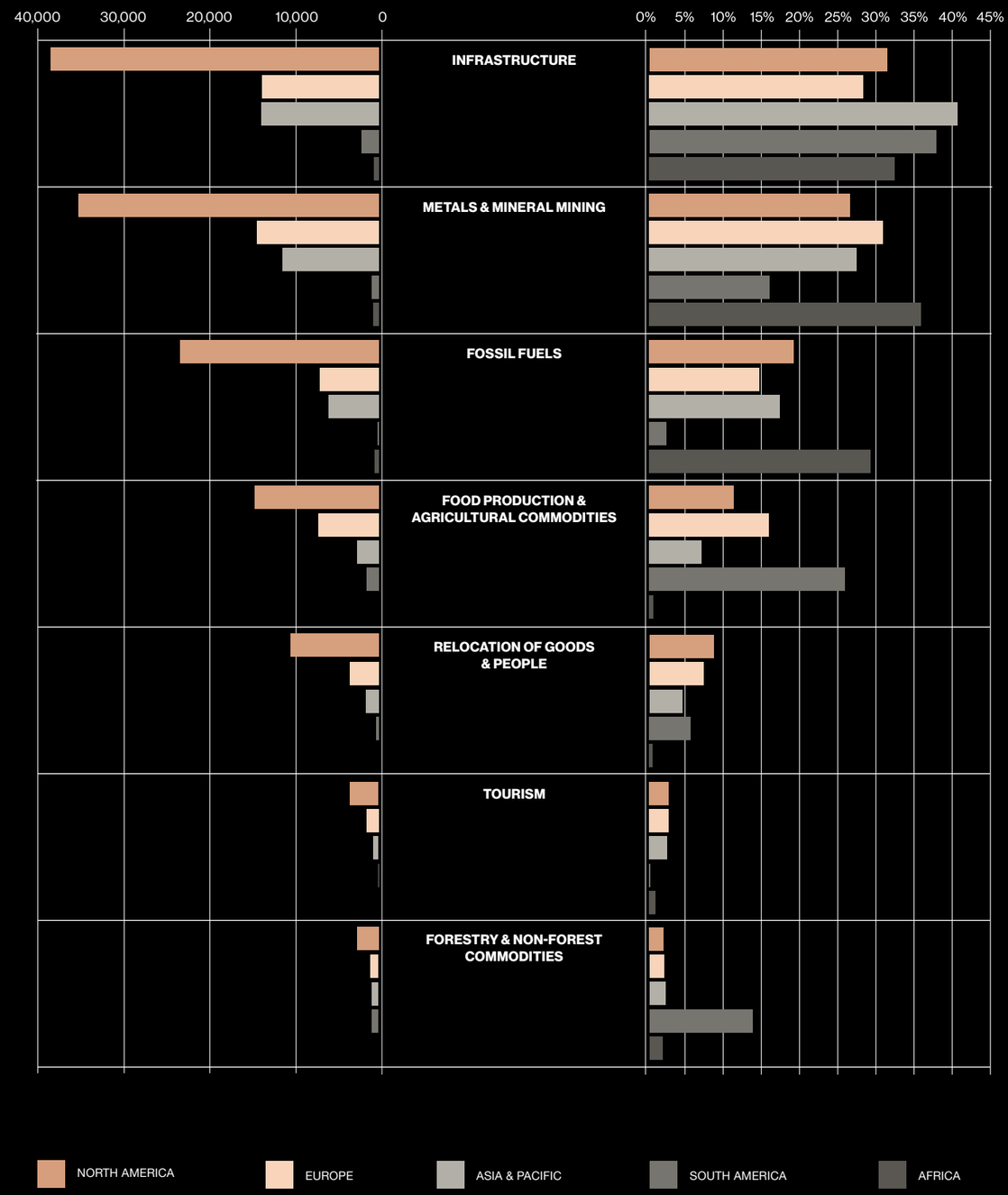
Note the number of banks included in Africa and South America was limited to two banks each.

Regional and Sector Themes

- On average, North American banks invested USD 126 billion each in industry sectors linked to biodiversity impacts. This was 2.7 times the USD 47 billion of finance provided on average by each of the European banks, and 3.5 times the USD 36 billion provided on average by each of the Asian and Pacific banks.
- The highest percentage of loans and underwriting was allocated to infrastructure in four of the five geographic regions.
- In Africa, finance for mining of metals and minerals sectors was especially strong, receiving more than a third of all investments by the included banks headquartered on the continent. Given a similar level of finance by these African banks was associated with the fossil fuel sector, the remaining sectors received less than one per cent of the total loans on the continent.
- South American banks invested a much higher percentage in industries that could be either directly or indirectly linked to the global food system and agricultural commodities, as well as the forestry and non-food forest commodity sector. This is not surprising considering the role South American countries play in the supply of key agricultural commodities such as soy, corn, beef and sugar cane.
- Banks in Europe and North America exhibited similar financing patterns to each other. However, North American banks invested a significantly higher percentage in the fossil fuel sector, while a larger percentage of European banks' loans was linked to the food system.

On average, each of the 50 banks included in the research were linked to finance with biodiversity risk to the tune of USD 52 billion.

FIGURE 4: AVERAGE VALUE OF FINANCE LINKED TO DRIVERS OF BIODIVERSITY LOSS FOR BANKS IN KEY REGIONS (2019, MILLION USD) AVERAGE PERCENTAGE OF FINANCE PER DRIVER OF BIODIVERSITY FOR BANKS IN KEY REGIONS



2.2 Bank Policies Limiting Biodiversity Impacts

The analysis clearly shows banks are not currently equipped to understand, let alone reduce, the impacts their lending portfolios have on biodiversity.

Not all finance provided by banks results in significant negative biodiversity impacts. However, to understand the effects on the natural environment enabled by those loans which do, an appropriate measurement and monitoring system is required.

This must include detailed policies and procedures to ensure banks reduce their contribution to the biodiversity crisis, alongside legal frameworks to hold banks liable in cases of significant negative impacts on biodiversity.

To put the loan calculations presented in the previous chapter into context, and to analyse the ability of banks to understand and avoid enabling biodiversity loss, the selected banks' policies towards biodiversity and specific industry sectors have been reviewed and scored.

Banks could score a total of 100 points, which were split between commitments (46 points) and exclusions (54 points).

Commitments include actions such as integrating sustainability into governance, having a dedicated policy for biodiversity, the reporting of biodiversity risks, and the development of biodiversity impact measurement systems for bank financing activities.

Exclusions are corporate activities with large biodiversity impacts that banks have committed not to fund, such as deforestation activities which impact high conservation value areas.

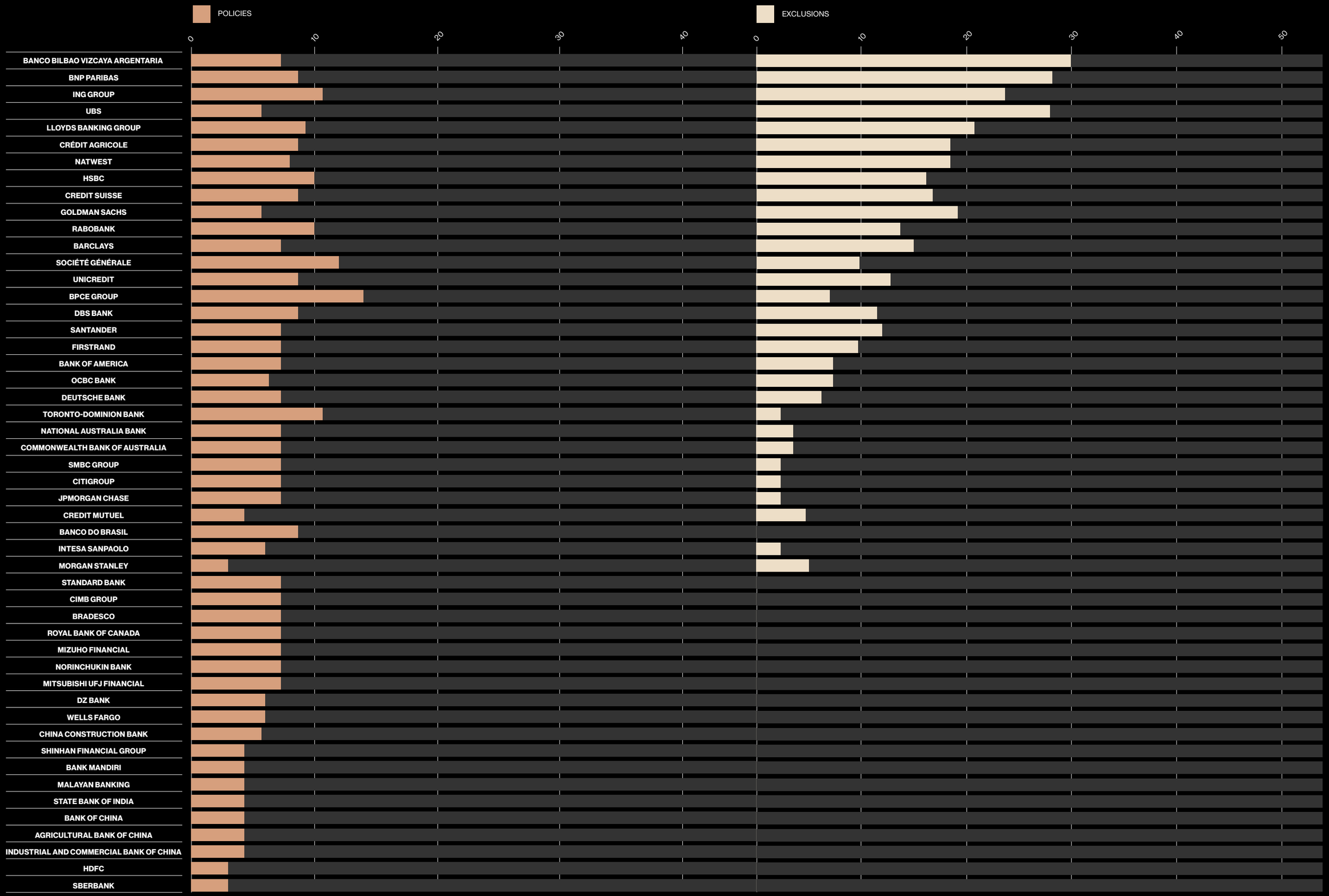
Banks were able to score points depending on the number of exclusion activities across the sectors of fisheries and aquaculture, agriculture, forestry and bioenergy, metal and mineral mining, fossil fuels, infrastructure, tourism, and logistics and transport. The full methodology and the detailed assessment for every bank can be found in the Appendix.

Results

The analysis clearly shows banks are not currently equipped to understand, let alone reduce, the impacts their lending portfolios have on biodiversity.

- All banks scored less than 40 points out of a total of 100.
- The nine banks which scored the highest regarding their policies were all headquartered in Europe, but their scores were still far too low to ensure the companies they fund do not contribute to the global biodiversity crisis.
- Even the highest scoring bank, Banco Bilbao Vizcaya Argentaria (BBVA), scored below 40 and - like all other banks - received poor grades for indicators that illustrated willingness to transform their sector.
- The four Chinese banks, ranked as the largest banks in the world,[21] scored particularly poorly in the policy sector and had no exclusions.
- Even though nearly all banks integrated sustainability considerations at the highest level of governance, sustainability directors and departments generally had no veto rights over particularly controversial financing activities.
- A very small percentage of banks have made sustainability performance part of the remuneration and bonus packages of executive compensation. However, these systems are not linked to biodiversity outcomes in particular and usually refer broadly to Environmental, Social, and Governance (ESG) Criteria.
- While 70 per cent of banks analysed have adopted the Equator Principles (a risk management framework for determining, assessing, and managing environmental and social risk),[22] none of them publicly support the Aichi Biodiversity Targets of the Convection of Biological Diversity. Amongst other targets, the Aichi framework stipulates that "by 2020, at the latest, governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits."[23]
- Crucially, none of the banks support a range of indicators that are considered vital to overhaul the way banks finance companies. These indicators include the ability of savers to have a say in how their money is being invested, the reporting of biodiversity risks including disclosure of loans with high risks, and the stress-testing of balance sheets for biodiversity impacts.
- The banks included did not report biodiversity risks sufficiently, especially when compared to their reporting on climate risks.
- None of the banks had developed sufficient systems to measure and monitor the impacts of their lending activities on biodiversity.

FIGURE 5: BANK POLICY AND EXCLUSION SCORES



Banks that would like to access their full assessments or have concerns about the accuracy are encouraged to contact portfolio earth at info@portolio.earth

Excluding activities with significant biodiversity impact

- Banks achieved the highest exclusion scores (average points achieved compared to the maximum available points) in the fossil fuel sector, followed by the agriculture sector (which includes agricultural commodities such as palm oil). These are sectors where the role of banks has received much public scrutiny in recent years.
- Scores for exclusions in the fisheries sector were low, the sector is one of the most significant drivers of global biodiversity loss.
- Nearly half of all banks (40 per cent, or 20 out of 50) had no exclusion activities, enabling the funding of any project no matter the seriousness of the biodiversity impact linked to them.

Conclusions

There were clear differentiations in the average scores and locations of the headquarters of the banks, with European banks performing best.

The average score of European banks was 21.7, nearly twice that of the seven North American and two African Banks (12.2 each). Banks in South America and the Asia Pacific region scored 8 and 7.4 points respectively.

A correlation between the size of the banks (total assets), the volume that is at risk of causing impacts on biodiversity, and the policy and exclusion scores could not be determined. This suggests that the size of a bank is not an indicator for its ability and willingness to develop biodiversity-related policies.

FIGURE 6: AVERAGE EXCLUSION SCORES OF ALL BANKS COMPARED TO MAXIMUM ACHIEVABLE POINTS

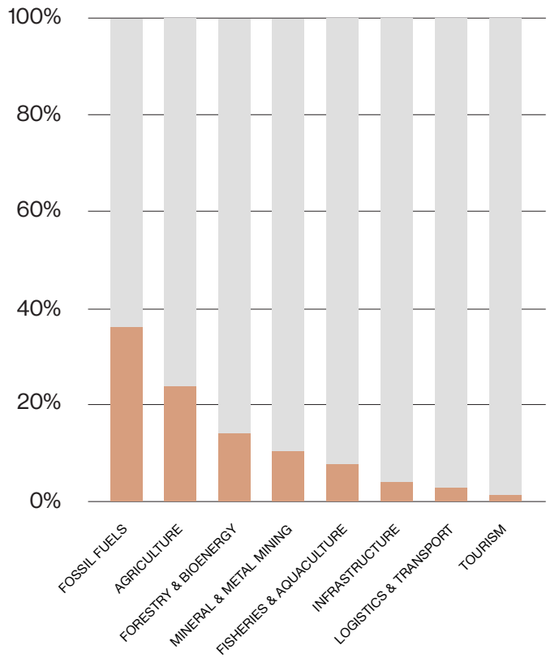
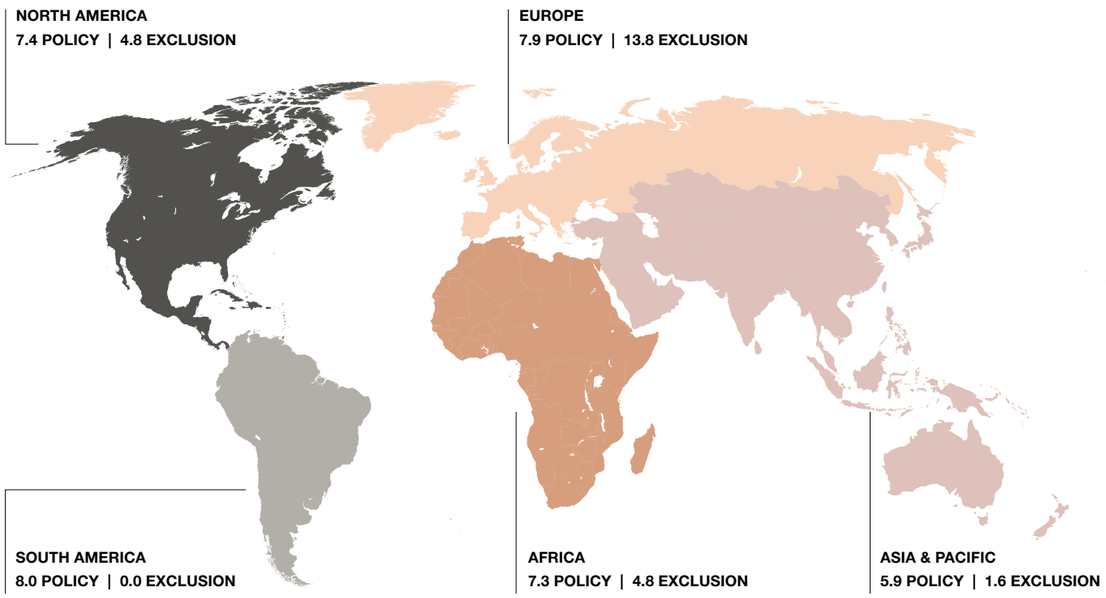


FIGURE 7: AVERAGE POLICY AND EXCLUSION SCORES BY BANKS IN KEY REGIONS



None of the banks had developed sufficient systems to measure and monitor the impacts of their lending activities on biodiversity.

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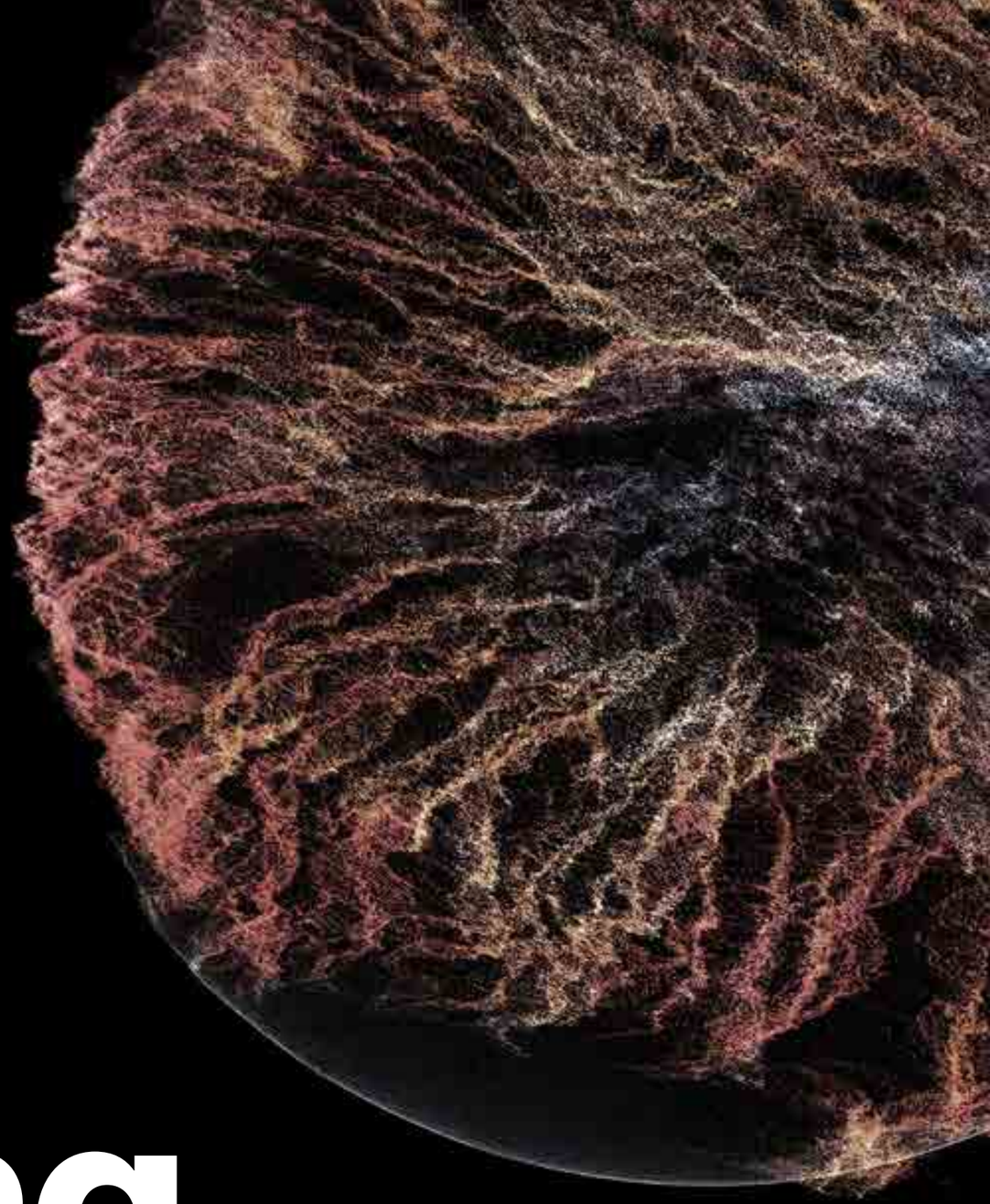
Rewriting of Financing Rules



Bankrolling Extinction

In recent decades, an unprecedented consolidation among corporate players has taken place around the world. Today, 10 per cent of the world's public companies generate 80 per cent of all profit.[24]

Academics have described large corporations that control much of the supply chains in specific industry as the "keystone actors of the Anthropocene", the proposed geological epoch characterised by the impact humans have had on the environment and climate.[25]

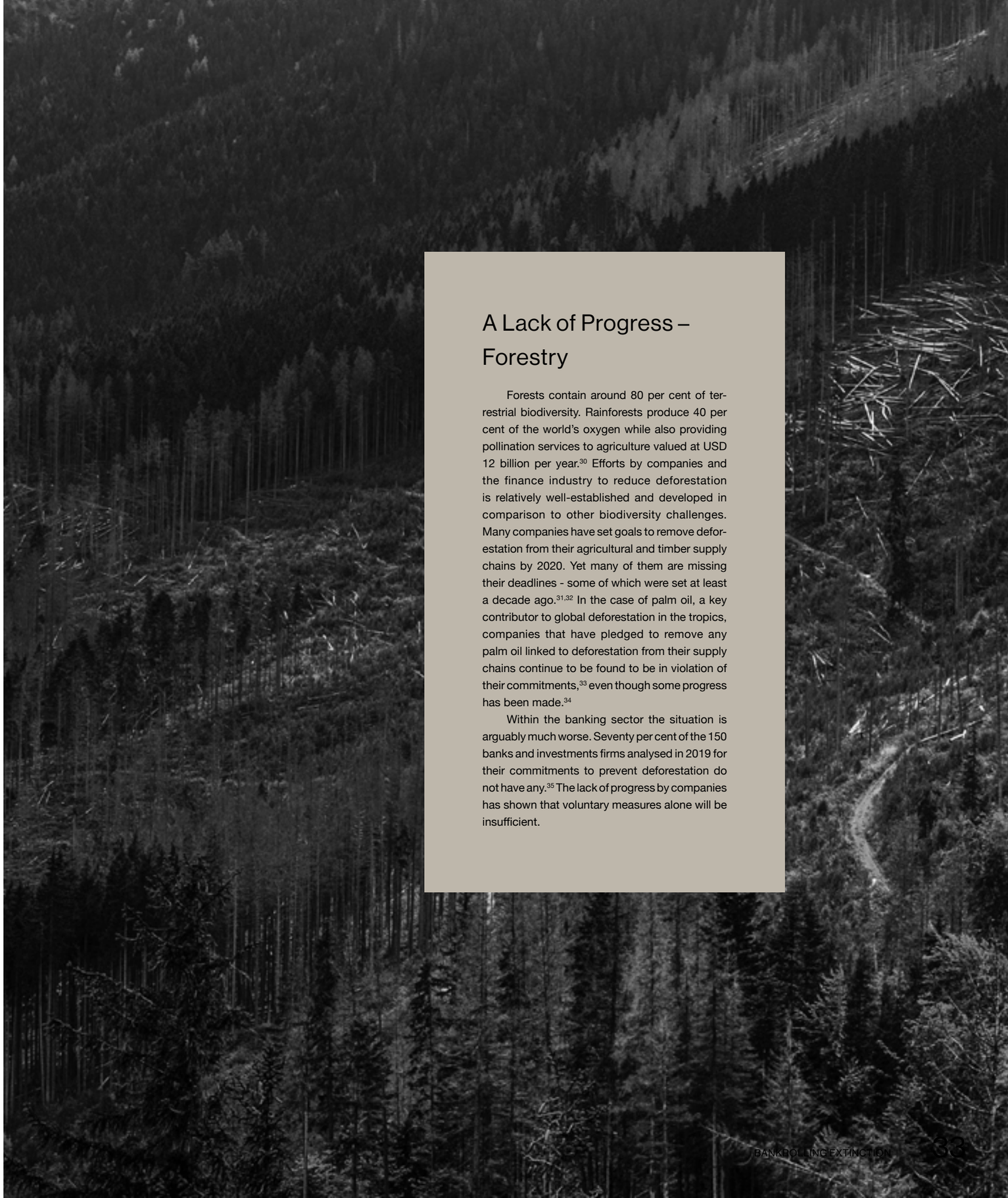
Since many of the banks included in this research are operating globally, and because the banking sector has also undergone significant consolidation in recent decades,[26,27,28] the same term could be applied to banks. As a consequence of the increasing concentration, an ever-smaller number of banks provide corporate financing to an ever-smaller number of corporate supply chain actors.

Yet despite their increasing and global influence on the biodiversity crisis, banks have no liability for the damage they cause to biodiversity, except in Brazil. This liability should apply in every geography in which a bank has operations. Furthermore, the policy assessments included in this report show banks have no comprehensive and specific policies or due diligence mechanisms in place when it comes to addressing their impact on nature. While some banks have excluded funding a small subset of the worst industries, such as fossil fuels like coal or oil sands, and a much smaller set of banks are aware of the effects loans might have on forests, it is clear banks do not consider themselves responsible or liable for biodiversity impacts caused by their lending activities.

While it has been argued that voluntary sustainability commitments by companies, banks, and investors are necessary and can translate into improvements, they are not sufficient. Voluntary action is not a substitute for legal and regulatory reform. Global initiatives such as the Consumer Goods Forum, the United Nations Global Compact (UNGC), the Equator Principles, and the Principles for Responsible Investment have not led to transformative reduction of biodiversity loss. Similarly, with few exceptions, international agreements have failed to bend the curve of human economic activities impacting the environment.[29]

In order to address the global biodiversity and extinction crisis, and to avoid reaching planetary tipping points from which biodiversity and human economy cannot recover, legal and regulatory change is required. Banks, as one of the key engines behind many human economic activities, must be accountable for the impacts of their finance activities on nature.

Alongside the immediate exclusion of practices with devastating impacts on biodiversity, the frameworks in which banks operate need to be overhauled. This includes the systematic inclusion of biodiversity considerations in lending decisions, risk management, and the development of corresponding due diligence systems. It also necessitates the development of procedures to measure the impact lending activities have on biodiversity, and transparency when it comes to reporting risks and impacts. Most importantly, in order to cease funding activity with detrimental effects on nature, banks will have to accept that as enablers of such activities, they are co-responsible and liable for their impacts.



A Lack of Progress – Forestry

Forests contain around 80 per cent of terrestrial biodiversity. Rainforests produce 40 per cent of the world's oxygen while also providing pollination services to agriculture valued at USD 12 billion per year.[30] Efforts by companies and the finance industry to reduce deforestation is relatively well-established and developed in comparison to other biodiversity challenges. Many companies have set goals to remove deforestation from their agricultural and timber supply chains by 2020. Yet many of them are missing their deadlines - some of which were set at least a decade ago.[31,32] In the case of palm oil, a key contributor to global deforestation in the tropics, companies that have pledged to remove any palm oil linked to deforestation from their supply chains continue to be found to be in violation of their commitments,[33] even though some progress has been made.[34]

Within the banking sector the situation is arguably much worse. Seventy per cent of the 150 banks and investments firms analysed in 2019 for their commitments to prevent deforestation do not have any.[35] The lack of progress by companies has shown that voluntary measures alone will be insufficient.

This report highlights the role of banks in financing biodiversity destruction. Other groups and organisations are actively finding solutions and frameworks to overhaul the financial sector's investments in companies that harm biodiversity.

Recent notable examples of increasing scrutiny of the financial sector's impact on biodiversity loss

The Economics of Biodiversity:[36] The Dasgupta Review, due out this Autumn, will outline the impacts of biodiversity loss, the role of government and economic actors, and solutions.

A new report[37] by the Bank of the Netherlands (DNB) and the Netherlands Environmental Assessment Agency (PBL) has outlined the risks to the financial sector associated with Biodiversity loss, echoed by thought leaders IIPP[38].

The legal profession is also taking note: the Commonwealth Climate and Law Initiative[39] explores the potential biodiversity-related liability risks for financial institutions.

The Paulson Institute[40] recently launched a report making the case for a comprehensive, worldwide effort to protect and value nature as an insurance policy against the human consequences of biodiversity loss and outlined the ways in which we can reorient financial flows towards restoration of nature.

ShareAction's recent report on Asset Managers and Biodiversity Loss[41] demonstrated that none of the world's largest asset managers have a dedicated policy on biodiversity.

Investors are coming under increasing pressure[42] and using their influence[43] in response to the massive public outrage[44] to the Amazon Fires.

The role of the animal agriculture sector, and the financial institutions investing in the sector, has prompted campaigning pressure[45] from a number[46] of civil society organisations.

Many civil society groups are undertaking key campaigns against particular banks around specific commodities. For example, Rainforest Action Network has, together with other NGOS, analysed investments in the forest risk commodity sector[47] and fossil fuel sector[48] for a number of years. The recent analysis from Stand.Earth and Amazon Watch[49] outlined the role of European Banks in financing the trade of controversial oil extracted from the Amazon. A new report[50] from Mighty Earth investigates the role of banks such as BNP Paribas, ADM Capital and others in Industrial Deforestation to produce rubber. The new addition of the Stop the Money[51] pipeline campaign is targeting some of the biggest actors in the financial sector such as Blackrock and JP Morgan over their role in funding resource extraction and the consequences upon local and indigenous communities.

One recent set of recommendations from the Finance for Biodiversity (F4B) project aims to drive leading-edge research and analysis to strengthen the link between biodiversity and financing decisions. The project has developed a Finance Accountability Framework that includes six elements to transform the finance system. This framework is replicated on the following page.

A Systemic Accountability Framework by F4B Initiative

1. **Grant Citizens' Biodiversity Rights**
Financial institutions should take account of citizens' individual and collective biodiversity-related rights and preferences in their financing decisions, with governments clearly defining those rights.
- Financial institutions should inform and empower citizens to make biodiversity-related choices, as savers, lenders, insurers, consumers, voters and taxpayers.
- Regulators should require financial institutions to adopt compliance processes to respect the heritage rights of indigenous communities to biodiversity stewardship and use, and to respect their traditional livelihoods.

2. **Disclose Impact**
Financial institutions should publicly disclose actual and expected biodiversity impacts and associated risks.
- Regulators should require financial institutions to regularly and publicly report the biodiversity impact of their entire balance sheets, and to stress-test expected biodiversity risk.
- Financial institutions should make the data and assumptions underlying these reported impacts and risks publicly available to enable effective citizen and shareholder action, and to facilitate the setting of effective standards, policies, and regulation.

3. **Create Liability for Biodiversity**
Legal systems should make financial institutions liable for biodiversity impacts.
- Legislators should extend liability for biodiversity damage to the infringing companies' banks and other financing institutions.
- Regulators should require financial institutions and corporates to establish biodiversity protection as a public fiduciary responsibility of company directors in their corporate governance.

4. **Align Public Finance with Biodiversity**
Governments and public agencies should transparently align all public finance to biodiversity-related policies, goals, and commitments.
- Governments should eliminate or reform all biodiversity-negative subsidies and taxes and develop and scale up incentives for biodiversity restoration.
- Governments and public agencies should integrate biodiversity impact criteria into public procurement, investments and financial instrument design, sovereign debt arrangements, and monetary practices.

5. **Align Private Finance with Public Policy**
Financial institutions should ensure that their activities are consistent with biodiversity-related public policies, goals, and commitments.
- Regulators should require financial institutions to align their financial practices, including the design of financial instruments, with the biodiversity-related public policies and biodiversity-related international public policy commitments in jurisdictions where they operate.

6. **Integrate Biodiversity into Financial Governance**
The governance of global finance should accept accountability for impacts on biodiversity.
- Financial regulators and monetary authorities, including central banks, should assess and explain the actual and likely impacts of their decisions and actions on biodiversity.

“It is clear banks do not consider themselves responsible or liable for biodiversity impacts caused by their lending activities.”

4

Sector-specific Results

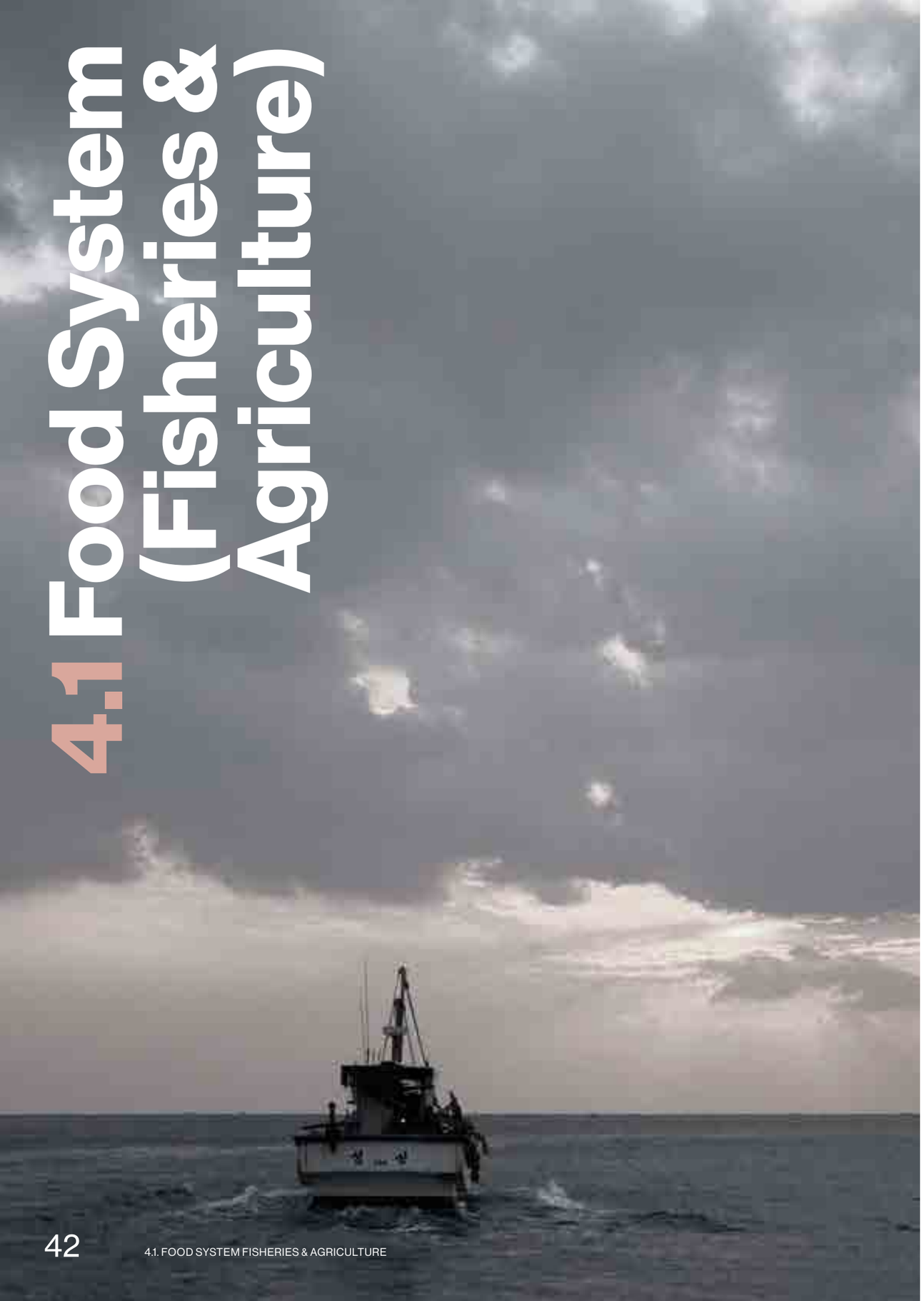
The value of loans to companies operating in the key biodiversity impacting sectors were calculated and the results for each of these sectors, as well as their impacts on biodiversity, are in the following chapters.

In order to achieve this, a matrix that links Refinitiv business codes to the key drivers of biodiversity loss identified by IPBES was developed. This allows for the calculation of finance that is linked to each driver of biodiversity loss. However, many industry codes can have multiple and simultaneous effects on biodiversity and are therefore associated with more than one driver of biodiversity loss. In such instances, the value of loans was split equally between the associated biodiversity impact sectors in order to keep the total value of loans the same. For instance, if a bank loan of USD 50 million was identified within the Food Retail and Distribution business code, USD 25 million each was assigned to the two relevant biodiversity impact sectors: food production and the relocation of goods and people. The full classifications of industries against the biodiversity impact sectors can be found in the Appendix.

The sectors included in the bar charts in this chapter were selected according to their size, position in the supply chain and biodiversity impacts.

In order to address the global biodiversity and extinction crisis, and to avoid reaching planetary tipping points from which biodiversity and human economy cannot recover, legal and regulatory change is required.

4.1 Food System (Fisheries & Agriculture)



Results

In 2019, the banks included in this analysis provided more than USD 380 billion of finance to the food sector which includes activities related to agriculture, fisheries, and aquaculture. This is one of the sectors identified by the IPBES as the largest drivers of biodiversity loss globally. Without relevant policies, funding exclusions, monitoring and reporting systems, and ultimately legal liability for negative impacts, the loans risk contributing to the global biodiversity crisis.

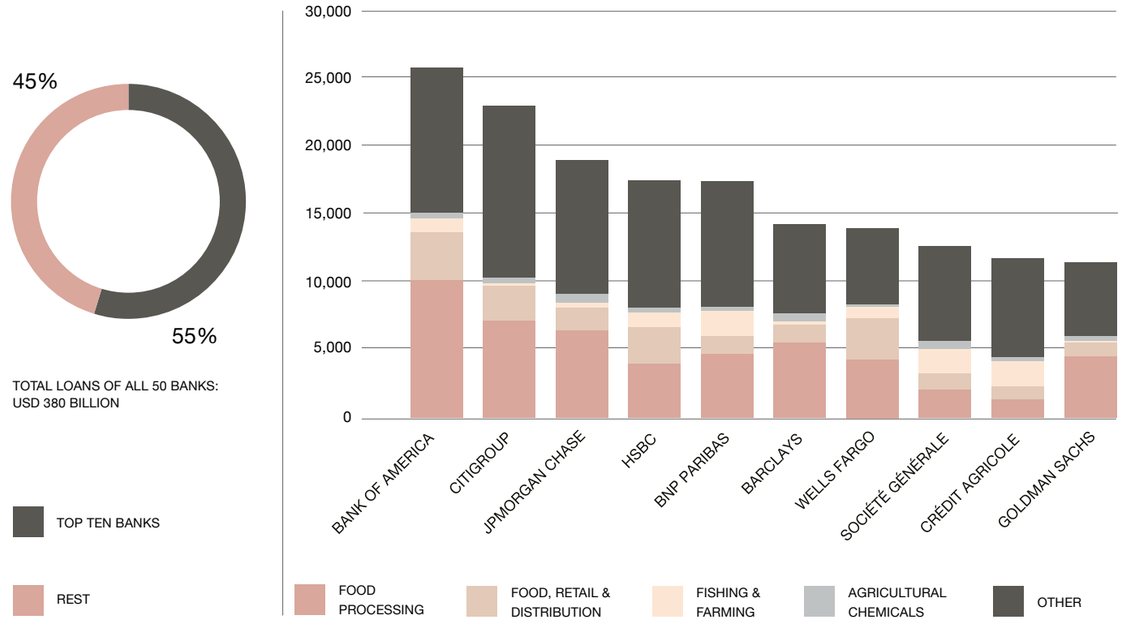
The three largest banks financing the sector were all from the United States of America. No Japanese banks can be found amongst the ten largest financiers of the sector, which are entirely made up of European and USA-based banks. Amongst the companies which received the largest share of the funding were supermarkets, food processing companies, and international grain traders such as Cargill, Archer Daniels Midland, and Bunge. A number of companies linked to leather goods also received significant bank finance, as did a number of palm oil companies in Indonesia. Nevertheless, since many of the companies on the bank loan sheets are positioned further along the value chain, the majority of the loans identified were predominantly linked to indirect biodiversity impact risks.

Fisheries & Agriculture

The food and agriculture sector is a USD 8.7 trillion industry[52] that comprises 10 per cent of global consumer spending. Moreover, 65 per cent of poor working adults rely on agriculture for their livelihoods.[53]

The fishery and agricultural sectors in particular have been identified as primary drivers of global biodiversity loss.[54] In 2019, 380 billion USD worth of loans and underwriting were provided to this sector from the banks included in this research. Twenty per cent of this was associated with direct impact on biodiversity, particularly from business sectors such as agricultural chemicals, fishing, and farming. The bank with the largest percentage of its total assets linked to the food systems was Rabobank. This is not surprising since it is well known as a leader in the agricultural banking sector around the world. Bank of America, Citigroup and JPMorgan Chase were identified as the largest absolute investors.

FIGURE 8: TEN BANKS WITH LARGEST FINANCE AT RISK IN THE FOOD SYSTEM SECTOR (2019, MILLION USD)



Fisheries, Aquaculture & Seafood

Industry Scope

Global fish production reached nearly 180 million tons in 2018 and the value of the industry is more than USD 400 billion.[56] With long-term trends of the capture fisheries remaining relatively stable in recent years, much of the growth of these sectors originates from an increase in aquaculture production which now accounts for 42 per cent of total production. Nevertheless, in 2018 (the last available data at the time of writing), capture fisheries reached a record 96.4 million tonnes and 88 per cent of this was produced in marine fisheries.[57]

It has been estimated that 60 million people are engaged in the primary capture and aquaculture fisheries alone and they operate more than 4.5 million fishing vessels.[58] Ninety per cent of commercial fishers (over 100 million people) are engaged in smaller scale fishery activities. However, small scale fishing accounts for just under half of the total global fish catch. The other half of global fish production is quite concentrated, with global fishing hot spots including the northeast Atlantic (Europe) and northwest Pacific (China, Japan, and Russia). The nutrient-rich waters off South America and West Africa are also considered focus points.[59]

China is by far the largest producer of fish and accounts for 35 per cent of the world's total production with a further 34 per cent from the other countries in Asia, 14 per cent from the Americas, and 10 per cent from Europe. Africa and Oceania contribute 7 per cent and 1 per cent respectively to global production. Aquaculture production is a big contributor to the dominance of Asian countries in the fishing industry. Around 90 per cent of all aquaculture takes place on the Asian continent.

Overall, around 90 per cent of global production is used for direct human consumption, with the majority of the remainder utilised to produce fish oil and fishmeal for the aquaculture industry.[60] Seventeen per cent of the world's animal protein intake comes from fish consumption.[61]

FIGURE 9: INVESTMENTS IN THE FOOD SYSTEM SECTOR IN 2019 AS A PERCENTAGE OF THEIR TOTAL ASSETS

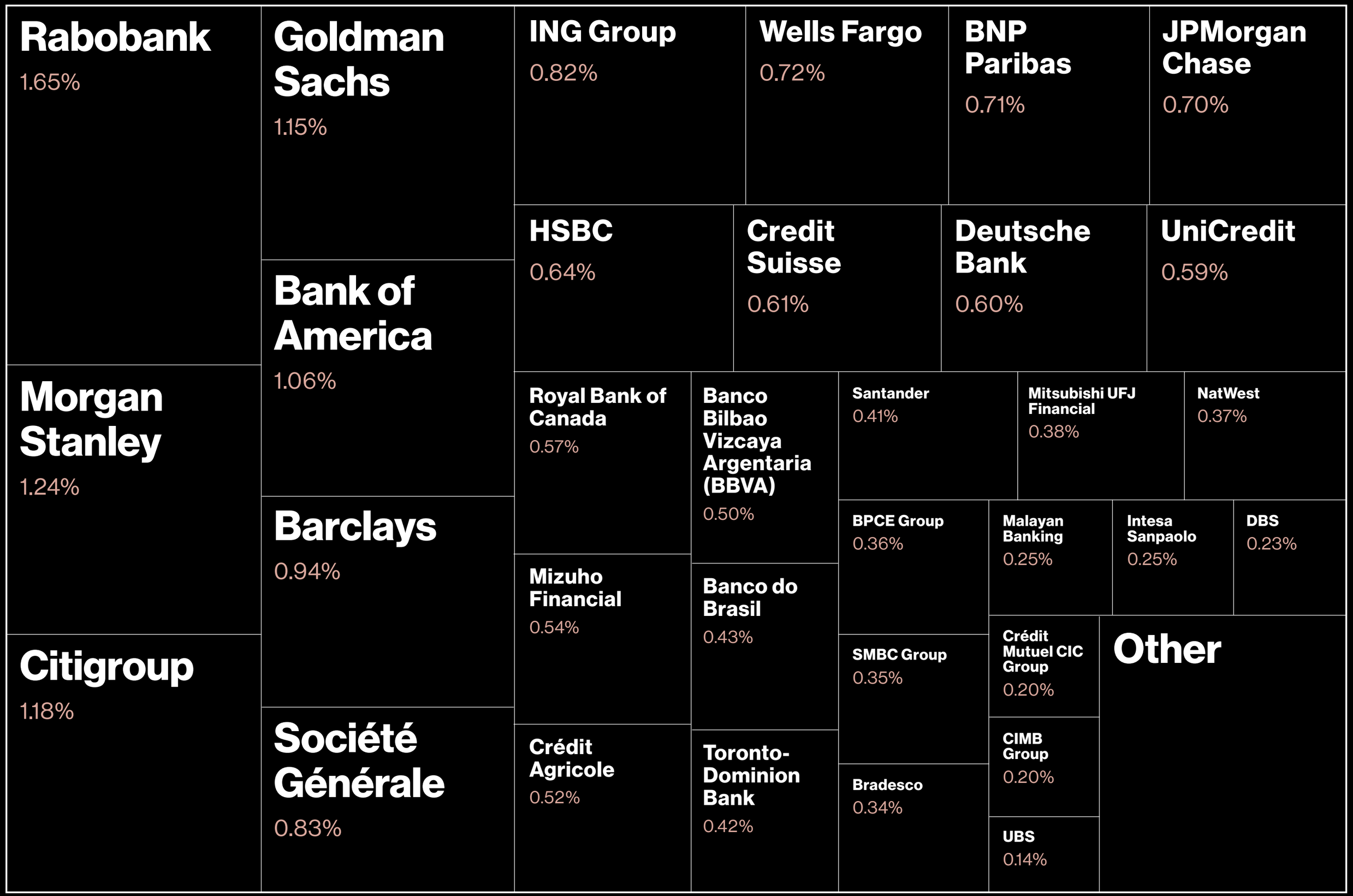
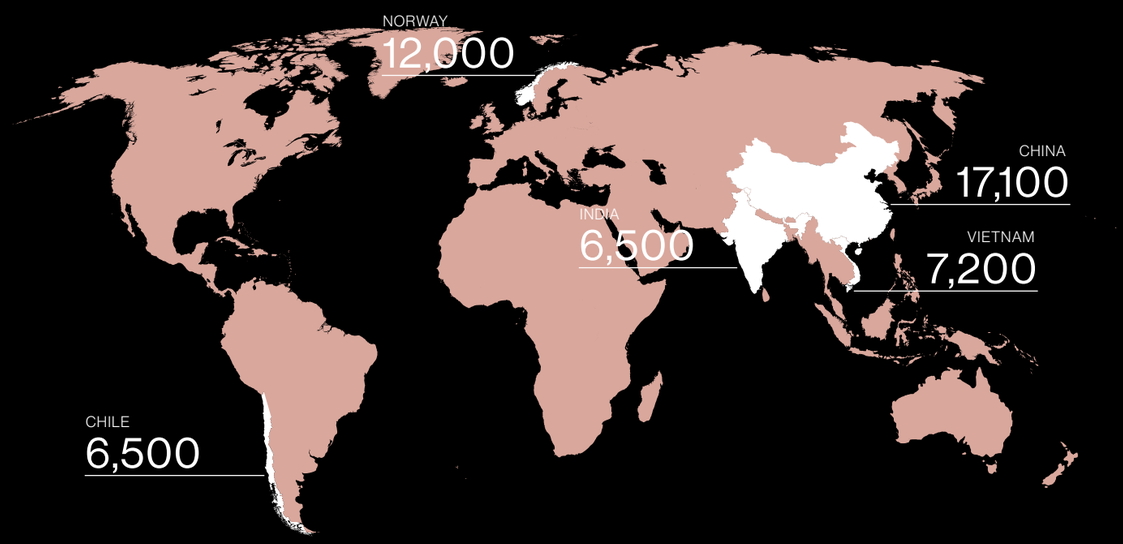
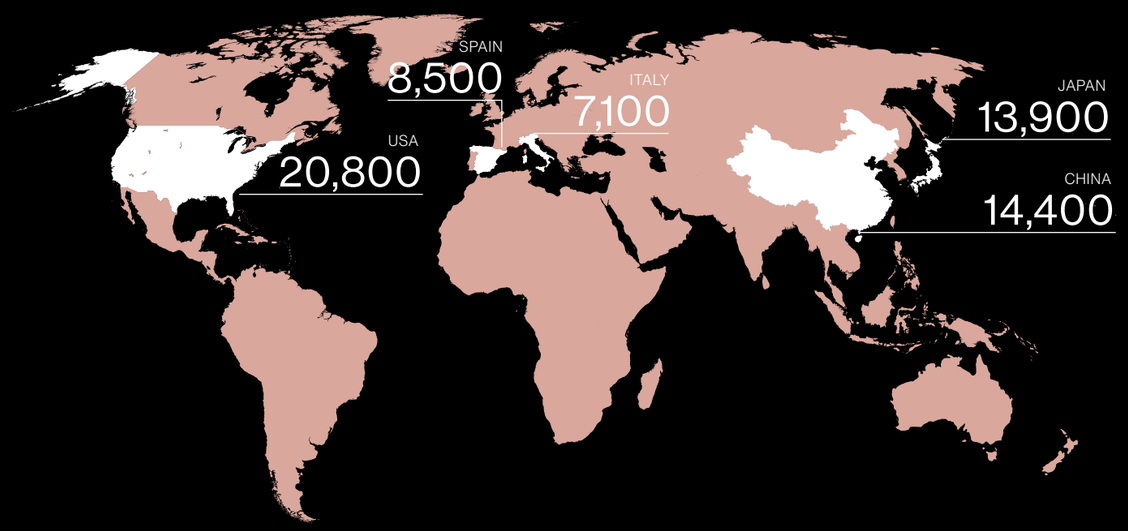


FIGURE 10: TOP EXPORTERS OF FISH PRODUCTS (2018, MILLION USD)[55]



Total trade value: 148,000

FIGURE 11: TOP IMPORTERS OF FISH PRODUCTS (2018, MILLION USD)[55]



Biodiversity impacts

The economic importance and ever-increasing production and consumption of fish has had profound impacts on fish stocks and aquatic ecosystems. Even though fewer species live in aquatic compared to terrestrial ecosystems, the world's oceans and rivers are nevertheless very rich in biodiversity, in particular on the continental shelves.[62] Importantly, the footprint of industrial fishing covers more than 55 per cent of ocean areas.[63]

Today, three-quarters of major marine fish stocks are fully or over-exploited or depleted.[64] The stocks fished at unsustainable levels more than tripled from 10 per cent to 34 per cent in recent decades.[65] The impact of fishing activities goes beyond the immediate effects on target species. It can also lead to changes in the physical structure of the environment, reduction in megafauna and top predators through bycatch, and changes to the nutrient flow within marine ecosystems.[66] Since overfishing can cause chain reactions that decrease marine biodiversity drastically, it has even been argued that there will be no seafood left in 40 years' time if no action is taken.[67]

- **Bottom trawling** is a destructive fishing method where large nets, metal doors, and chains are dragged over the seafloor. This can cause the collapse of specific ecosystem functions, especially in deeper waters. Despite the well-known impacts, bottom trawling remains one of the most common fishing practices, in particular as fishing efforts move further offshore and to deeper waters due to the overfishing of continental shelves.[68] The impact on the seabed is particularly severe. It has been calculated that the sediment mass that is resuspended (or stirred up) by bottom-trawling is approximately the same amount of all sediment being deposited on the world's continental shelves by rivers each year.[69]
- **Seamounts** have incredible biodiversity with many endemic species, but this diversity has also made them lucrative targets of the fishing industry and they are particularly vulnerable to bottom trawling. In Southern Australia for instance, where heavy fishing occurs around coral seamounts, 90 per cent of the surfaces where coral grew are now bare rock. Even in the Great Barrier Reef World Heritage Area, seafloor trawling for prawns and scallops has caused localised extinction of some coral species.[70]
- **Drift nets** are large nets that hang vertically in water and can reach 35 metres in height and up to 20 kilometres in length.[71] One fishing operation in Japan used 24 drift nets with a total netting area of around 700 kilometres. In addition to the targeted skipjack tuna, the catch of 97 dolphins, 10 turtles, 21 manta rays, and 11 whales was reported.[72] Even though the United Nations General Assembly established an international moratorium prohibiting the use of nets over 2.5 kilometres in length, and the European Union banned their use in 2013, they are still widely used.[73] It has been estimated that every year 640,000 tons of fishing gear (including drift nets) is lost, abandoned, or discarded in the world's ocean, killing huge numbers of commercially valuable or threatened species.[74]
- **Aquaculture** is also linked to severe biodiversity impacts, including coastal habitat destruction via both waste disposal and introduction of alien invasive species and pathogens. Aquaculture also contributes to further depletion of fisheries stocks, due to the large fish meal and fish oil requirements used for feed. These effects are species dependent. For instance, shrimp and salmon farming have net negative effects, while carp and mollusc farming have net positive effects on global fish supply and food security.[75] There have also been instances of deforestation, particular in mangrove forests for the establishment of aquaculture industries.[76]

The footprint of industrial fishing covers more than 55 per cent of ocean areas.

Agriculture

Industry Scope

Every day, agriculture produces an average of 23.7 million tons of food, provides livelihoods for 2.5 billion people, and is the largest source of income and jobs for poor, rural households. In developing countries, agriculture accounts for 65 per cent of all jobs.[78] Dependence upon a functioning ecosystem is the foundation of agriculture. Therefore, biodiversity and the food economy are highly interrelated. For instance, services providing bees and other insects that pollinate crops are estimated to be worth more than USD 200 billion per year.[79]

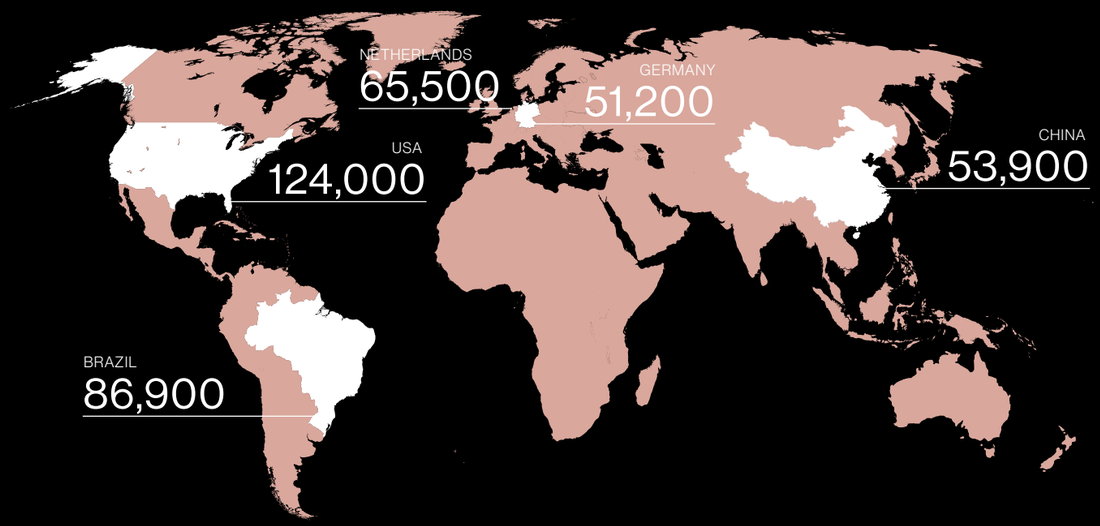
Yet when it comes to the production of food, species diversity has largely been lost. There are around 6,000 plant species cultivated for food around the world. Fewer than 200 contribute substantially to global food output, and only nine account for 66 per cent of total crop production (sugar cane, maize, rice, wheat, potatoes, soybeans, oil-palm fruit, sugar beet and cassava).[80] Similarly, livestock production is based on about 40 animal species but only a handful of them provide the vast majority of the global output for meat, milk, and eggs.[81]

The agriculture and farming sector is by far the most important employer globally. It was estimated that more than 1.3 billion people make their income from this sector, more than half of the world's labour force.[82] There are more than 570 million farms worldwide, but the vast majority are small with less than a hectare of land. These small farms control only 8 per cent of all agricultural land, while the 1 per cent of farms that are larger than 50 hectares control 65 per cent of the world's agricultural land.[83]

Agriculture is one of the largest contributors to global biodiversity loss.[84] Considering that at the current rate of consumption and population growth the world will need to raise its food production by 60 to 70 per cent to feed more than nine billion people by 2050,[85] radical changes in the food system will be necessary to address its effects on biodiversity.

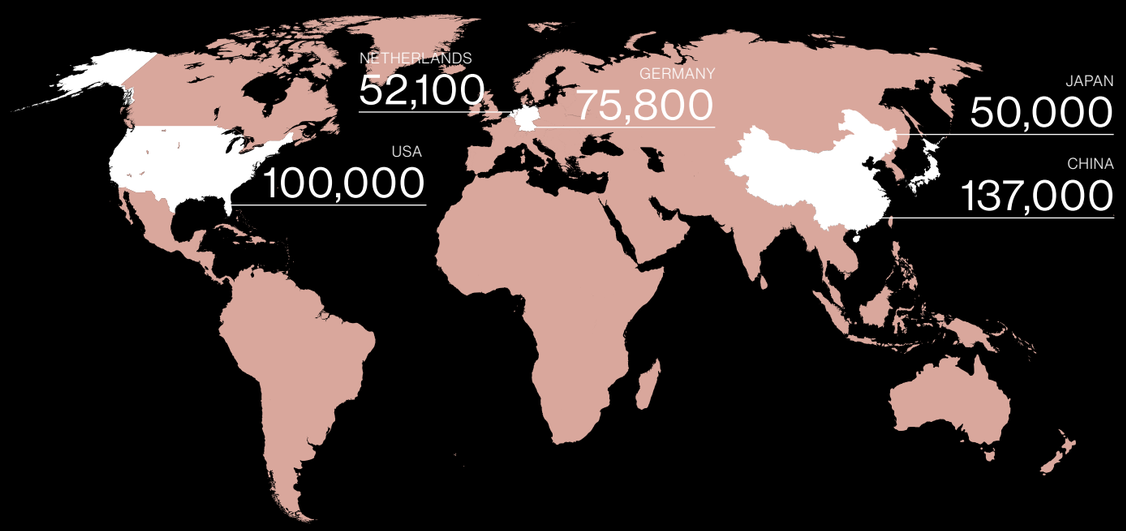
Agriculture is one of the largest contributors to global biodiversity loss.

FIGURE 12: TOP EXPORTERS OF AGRICULTURAL PRODUCTS (2018, MILLION USD)[77]



Total trade value: 1,200,000

FIGURE 13: TOP IMPORTERS OF AGRICULTURAL PRODUCTS (2018, MILLION USD)[77]



Biodiversity impacts

Agriculture destroys biodiversity by driving the conversion of natural habitats to intensely managed systems and by releasing pollutants, including greenhouses gases. Food value chains further impact biodiversity through energy use, transport, and waste[86] as well as by supporting industries like packaging. In 2017, agriculture used 37 per cent of global land area. Regionally, this ranged from more than half of all land in Asia, to less than a quarter in Europe. Twenty countries contributed to more than 70 per cent of total arable land (cropland used for annual crops such as cereals and soybeans). India, the United States of America, the Russian Federation, China and Brazil combined accounted for 40 per cent of agricultural land area.[87] If current trends continue, the global calorific demand will increase by 70 per cent in 2050, and crop demand for human consumption and animal feed will increase by at least 100 per cent.[88] This will further increase pressure on ecosystems and biodiversity.

Pesticides

Pesticides can have devastating effects on biodiversity and their impacts have been widespread and persistent. For instance, even though DDT was banned decades ago, it is still found in penguins in Antarctica.[89] Most of the pesticides that are applied do not reach their targets. Only about 50 per cent of pesticides reach target crops when applied through aerial spraying, and a much smaller quantity reaches target pests. It has been estimated that less than 0.1 per cent of all applied pesticides reach the target organisms and more than 99 per cent of applied pesticide impacts non-target organisms.[90] As a result of their widespread use, agriculture chemicals can also lead to a decline in beneficial predators[91] and to long-term change of habitats and the food chain.[92]

Chemical Fertilisers

The excessive use of chemical fertilisers can also have unintended consequences on nature including direct toxicity to organisms from nitrogen, oxygen depletion in aquatic ecosystems, soil and water acidification, and the intensification of impacts from pathogens, invasive species, and climate change.[100] Eutrophication (an excess in nutrients caused by run-off from agricultural fertilisers into waterways) is not just a problem for inland waters but also for marine environments. Sixteen per cent of marine ecosystems evaluated are in the high or highest risk categories for coastal eutrophication.[101]

Deforestation

Another area with particularly visible biodiversity impacts caused by agriculture is the conversion of pristine forests, especially tropical forests, to pasture, oil palm, and soy plantations. Despite covering only 10 per cent of the earth's land surface, tropical forests support most of world's terrestrial biodiversity[102] and the current mass extinction of biodiversity largely plays out in these ecosystems.[103] Commodity-driven agriculture is responsible for more than a quarter of global forest loss[104] and most agriculture in the tropics comes at the expense of intact forests.[105]

- The total area covered by palm oil (Elaeis guineensis) plantations is estimated to be around 18 million hectares,[106] an area larger than Switzerland, the Netherlands, Denmark, and Belgium combined. Much of the rapid development of oil palm plantations has been at the expense of tropical forests. One study found that more than 50 per cent of Indonesian and Malaysian oil palm expansion between 1990 and 2005 took place on forested land.[107]
- Soy has been linked to deforestation and land-use change in the Amazon and in dry forests and savannas of South America such as the Grand Chaco and the Cerrado. However, beef production is still currently considered the largest driver of deforestation in tropical forests. It is responsible for more than double the forest conversion generated by the production of soy, palm oil, and wood products combined.[108]

Example: Impacts of Neonicotinoid Pesticides (or neonics) on Pollinators

Neonicotinoid pesticides are known to have sub-lethal effects on bees' foraging and colony performance and are thereby implicated in the global decline of bee populations.[93] This can have severe impacts on food production since many staple crops are reliant on pollinators such as bees, and some countries including the European Union have implemented various bans on outdoor use of three of the most widely used neonicotinoids.[94] Pesticides that end up in waterways have been shown to reduce biodiversity richness of invertebrates by up to 42 per cent.[95] Glyphosate, the most extensively used pesticide in the world, is increasingly linked to negative biodiversity impacts[96, 97, 98] despite manufacturers' claims of environmental benefits.[99] It is now also banned or being phased out in a small number of countries but, as is the case with neonics, the use of these chemicals is still legal in most jurisdictions.

4.2 Forestry, Wood Products & Non-food Forest Commodities

Results

Bank loans are at risk of driving biodiversity loss directly through funding of forestry companies, but also indirectly through financing industries along the supply chain such as paper packaging, construction materials, or furniture. While forestry and wood products saw the least amount of investment amongst the seven drivers of biodiversity loss included in this research, forests are the most biodiverse ecosystems on the planet and represent a crucial point of intervention to address the global biodiversity crisis.

American banks are amongst the top lenders in the forestry sector, however there is a much stronger representation of Asian banks in the top ten, with Japanese Mizhuo Financial Group and the Sumitomo Mitsui Banking Corporation Group (SMBC) included. The more than USD 52 billion in investments identified as being linked to the forest sector were split nearly evenly between direct and indirect biodiversity impact risks.

Of particular note is that Indonesian Bank Mandiri, Brazilian Banco do Brazil, and Malaysian Malayan Banking are some of the largest investors compared to their total assets. This is consistent with the importance of the forest and wood products sectors in these geographic regions.

Industry Scope

While forests cover around 31 per cent of the global landmass, half of all forests are found in only five countries: Brazil, Canada, China, Russian Federation, and the United States of America.[110] Each year, wood valued at over USD 100 billion is removed from forests globally, mainly accounted for by industrial roundwood. Approximately 10 million people are employed in the forestry sector, with the livelihoods of many more dependent on forests.[111]

The global forestry and logging products market alone reached a value of nearly USD 510 billion in 2019[112] and the paper and pulp market was valued at USD 519 billion.[113] In 2018, global industrial roundwood (including pulpwood, saw logs and veneer logs from both natural and plantation forest) removals grew by 5 per cent to reach a record level of 2.03 billion m^3. Nearly as much wood is used for cooking, heating, and power generation as is used for industrial roundwood. In 2018, global wood fuel removals amounted to 1,943 million m^3. Further down the supply chain, 409 million tonnes of paper and paperboard and 408 million m^3 of wood-based panels were produced in 2019.[114]

In addition to the logging and harvesting of timber, the forestry sector also has significant links and downstream connections along global value chains, such as to the paper and packaging industry, as well as building and infrastructure activities.

FIGURE 14: TEN BANKS WITH LARGEST FINANCE AT RISK IN THE FORESTRY SECTOR (2019, MILLION USD)

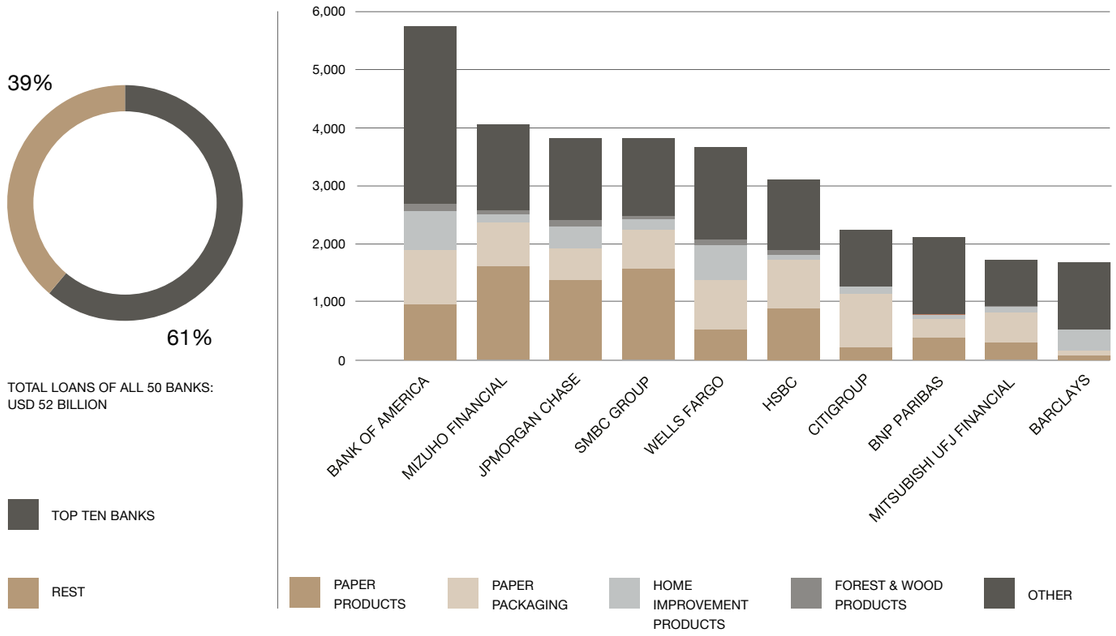


FIGURE 15: INVESTMENTS IN THE FORESTRY AND WOOD PRODUCTS SECTOR IN 2019 AS A PERCENTAGE OF THEIR TOTAL ASSETS

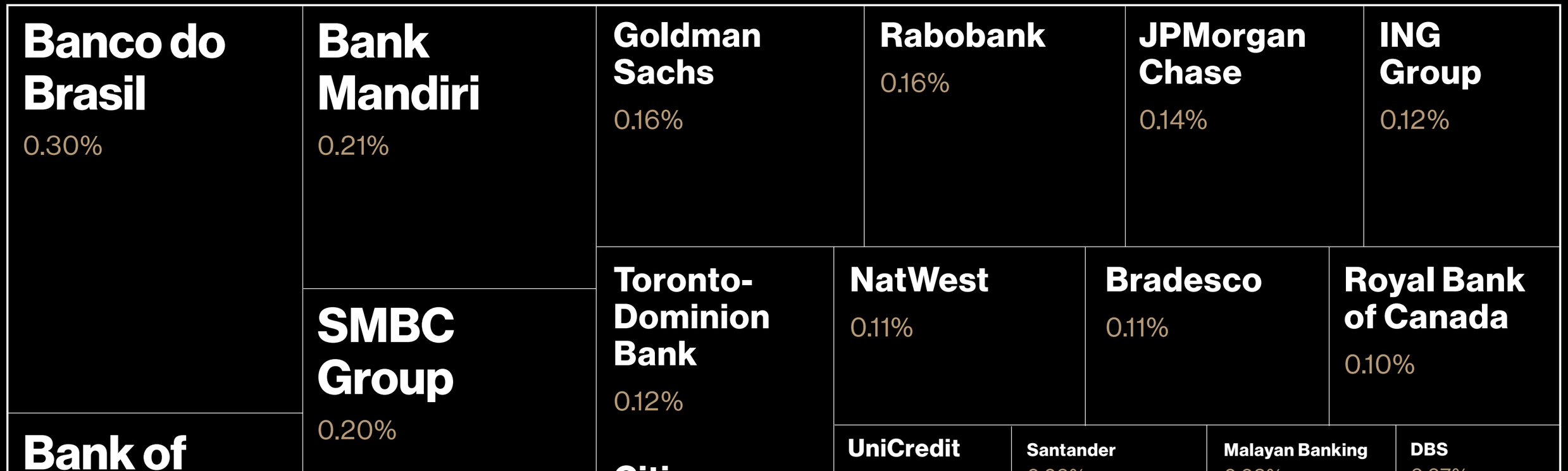
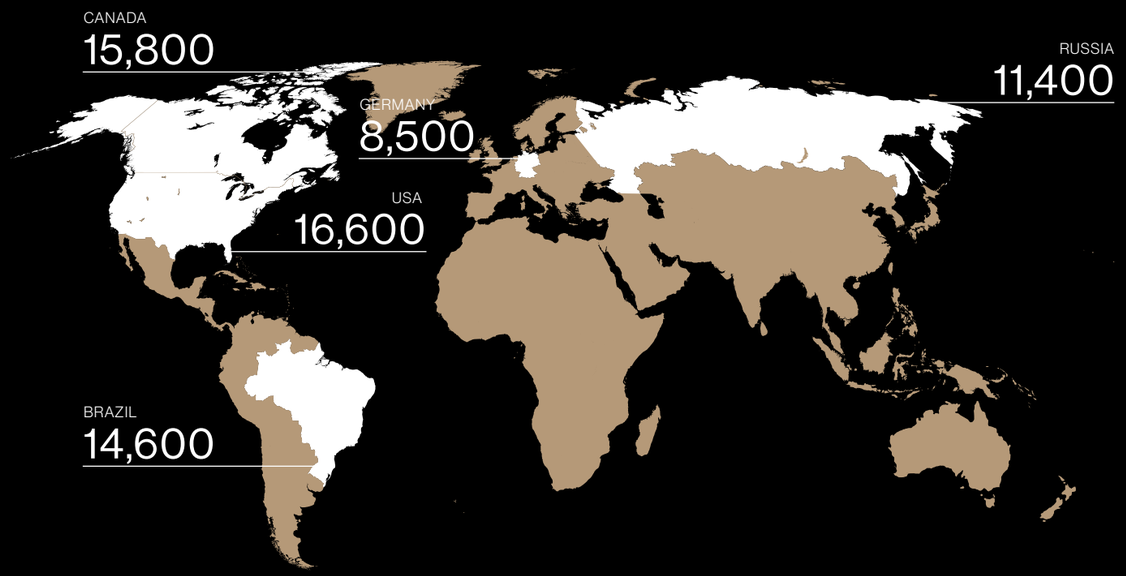
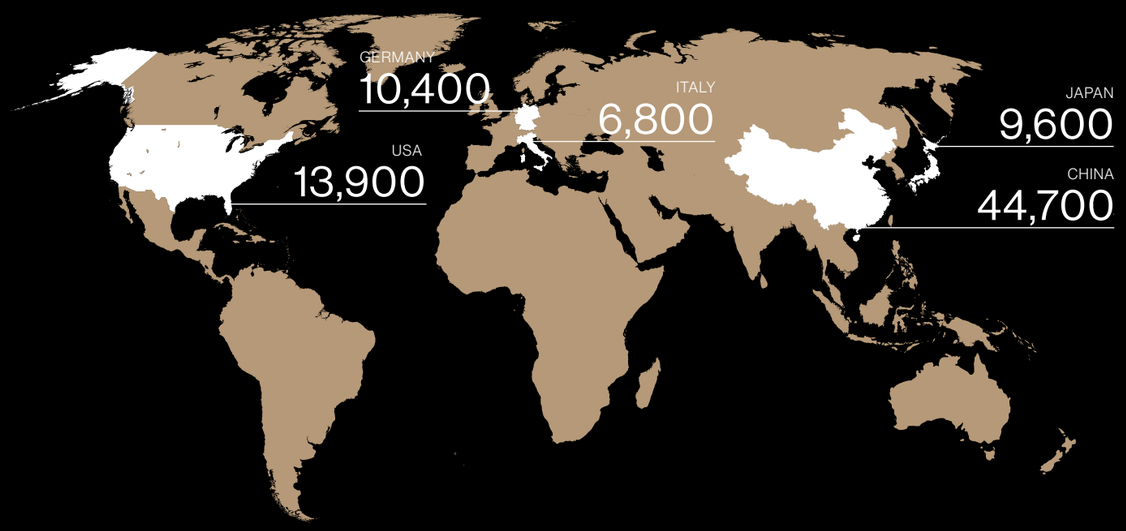


FIGURE 16: TOP EXPORTERS OF FORESTRY PRODUCTS (2018, MILLION USD)[109]



Total trade value: 178,000

FIGURE 17: TOP IMPORTERS OF FORESTRY PRODUCTS (2018, MILLION USD)[109]



Biodiversity impacts

While the amount of finance provided to the forestry, wood products, and non-food forest commodity sector is comparatively small, the biodiversity impacts can be severe. Forests are home to most of Earth's terrestrial biodiversity and provide habitat for 80 per cent of amphibian species, 75 per cent of bird species, and 68 per cent of mammal species. The concentration of biodiversity varies according to factors such as forest type, geography, climate, and soils.[115]

Forests also provide ecosystem services that are essential for human wellbeing[116] such as provision of water, mitigation of climate change, regulation of local and regional weather patterns, and habitats for many pollinators. Three-quarters of the world's leading food crops benefit from animal pollination for fruit, vegetable, or seed production. In addition, nearly 30,000 plant species have been recorded as being of medicinal use. Many of them are found in forest ecosystems.[117]

It is estimated that some 420 million hectares of forest have been lost through conversion to other land uses since 1990,[118] equivalent to the size of the entire European Union.[119] Although the rate of deforestation has decreased over the past three decades, in each of the last five years 10 million hectares of forest were lost.[120] Agricultural expansion is the primary driver of deforestation and has been included in the chapter on the food system, but logging for paper and wood products continues to be a contributor to forest loss.

All forestry activities in natural forests have some impact on biodiversity, but the extent and severity of these impacts vary substantially between forest management types. The removal of forest cover can result in wildlife losing their shelter, food sources, and migration routes, and becoming more vulnerable to human-wildlife conflicts such as hunting and poaching as new logging roads extend into previously unlogged areas. Illegal and unregulated logging can be of particular concern since it often takes place in protected areas. According to some estimates, logging in violation of national laws accounts for 8 to 10 per cent of global production and trade in forest products. It also represents 40 to 50 per cent of all logging in some of the most valuable and threatened forests on earth.[121]

Clear-felling of natural forests (the removal of almost all trees) has such severe effects on biodiversity that many countries have now abandoned the practice.[122] Even selective logging and reduced-impact logging, which became popular in the 1990s as an alternative to clear-felling, have been shown to impact biodiversity through forest degradation. Scientists discovered that "selective logging, unless it is practiced at very low harvest intensities, can significantly reduce the biomass of a tropical forest for many decades, seriously diminishing aboveground carbon storage capacity, and create opportunities for weeds and vines to spread and slow down the ecological succession."[123]

On the Red List of Threatened Species by the International Union for Conservation of Nature (IUCN), 8 per cent of assessed forest plants, 5 per cent of forest animals, and 5 per cent of fungi found in forests are currently listed as critically endangered. More than 1,400 tree species are also considered critically endangered.[124]

The role forests play in the protection of biodiversity and the regulation of the global and local climate is so important that many companies have now adopted policies to remove deforestation of natural forests from their supply chain altogether.[125]

It is estimated that some 420 million hectares of forest have been lost through conversion to other land uses since 1990,[118] equivalent to the size of the entire European Union.

4.3 Mining for Metals & Minerals

Results

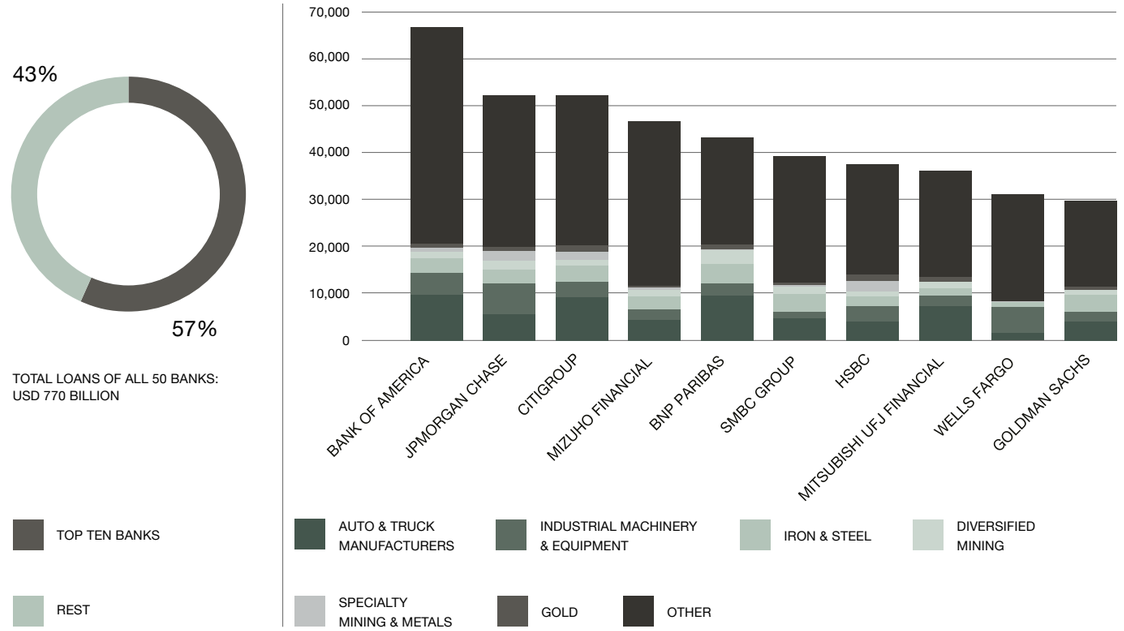
Mining for metals and minerals is a driver of biodiversity loss that permeates many human economic activities, especially when the downstream value chain is included. As a result, a large number of industry sectors have been associated with mining in the methodology applied in this report. Aside from immediate impacts on forests or water from extraction activities, our demand for food, cars, planes, machinery, and electronics all fuel the global demand for mining products. The majority of loans and finance with biodiversity risk is linked to these indirect industries, rather than the production of unprocessed metals and minerals.

The top ten banks at risk of financing biodiversity loss through links to the wider mining sector are the same that can be found in the forest sector, with the exception of Goldman Sachs which replaced Barclays. The diversity of the sector is also illustrated by the fact the borrowing companies have been identified in 67 countries.

The six banks with the largest proportion of investment in the mining sector compared to their overall assets were all American and Japanese.

Many low and middle-income economies remain dependent on the mineral sector.

FIGURE 18: TEN BANKS WITH LARGEST FINANCE AT RISK IN THE MINING SECTOR (2019, MILLION USD)



Industry Scope

Metals are classified into two categories, precious and industrial. Precious metals, including gold, platinum, palladium, and silver, are also used in industrial and manufacturing processes. Palladium is now considered the most valuable of the four major precious metals and 85 per cent of palladium ends up in exhaust systems for cars.[127] Gold is widely found in electronics in addition to jewellery, and silver is commonly used in electrical applications, solar panels, and the automotive industry.

Copper, aluminium, steel, and zinc are amongst the most important base metals[128] that make up the majority of metal use. The construction industry accounts for the largest revenue share of base metals with 40 per cent of the total, followed by the automotive industry, consumer products, and the electrical and electronics sector.

In 2018, the global base metal mining market size was valued USD 325 billion,[129] while the value of the precious metal market has been estimated at around USD 180 billion.[130] Metal reserves are often highly geographically concentrated. For instance, 95 per cent of the world's chromium resources are geographically concentrated in Kazakhstan and southern Africa, and half of all cobalt reserves can be found in the Democratic Republic of the Congo.[131] Mining plays a dominant role in 81 countries that collectively account for a quarter of world GDP, half of the world's population, and nearly 70 per cent of those in extreme poverty. As a result, a growing number of low-income countries focus on resource extraction and processing activities as fundamental to their economic growth plans.[132] Many low and middle-income economies remain dependent on the mineral sector, and the governance of natural resources in many of these countries is often weak, poor, or failing. Amongst the ten countries most dependent on mining as a contributor to their economies are Suriname, Democratic Republic of the Congo, Guinea, Burkina Faso, Kyrgyz Republic, Mali, Sierra Leone, Liberia, Ghana, and Uzbekistan.[133] China plays a particularly important role in the global market. The World Bank has found that for many of the metals needed in a carbon-constrained future, China enjoys a "global dominance" for both production and reserves.[134]

FIGURE 19: INVESTMENTS IN THE MINING SECTOR IN 2019 AS A PERCENTAGE OF THEIR TOTAL ASSETS

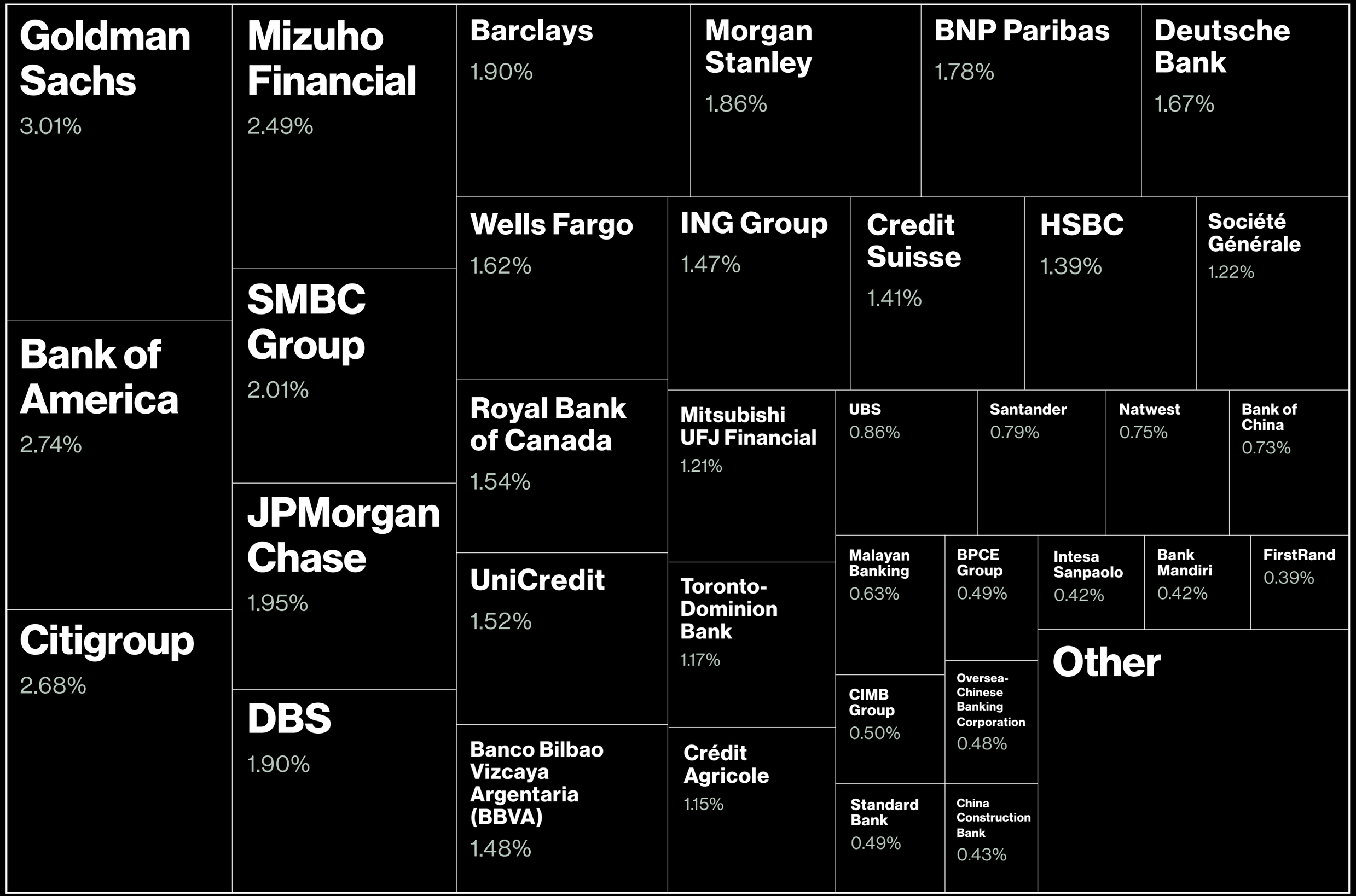
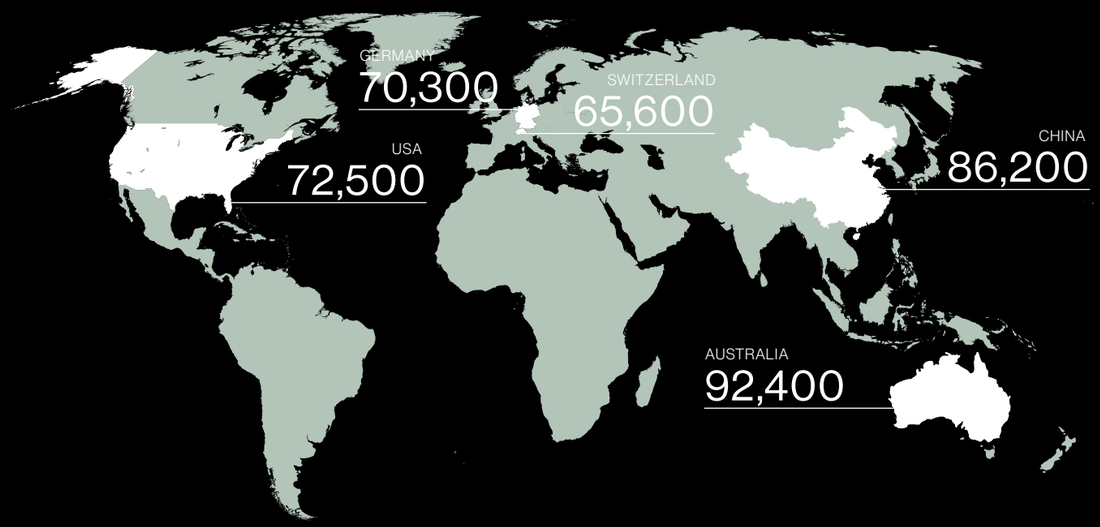
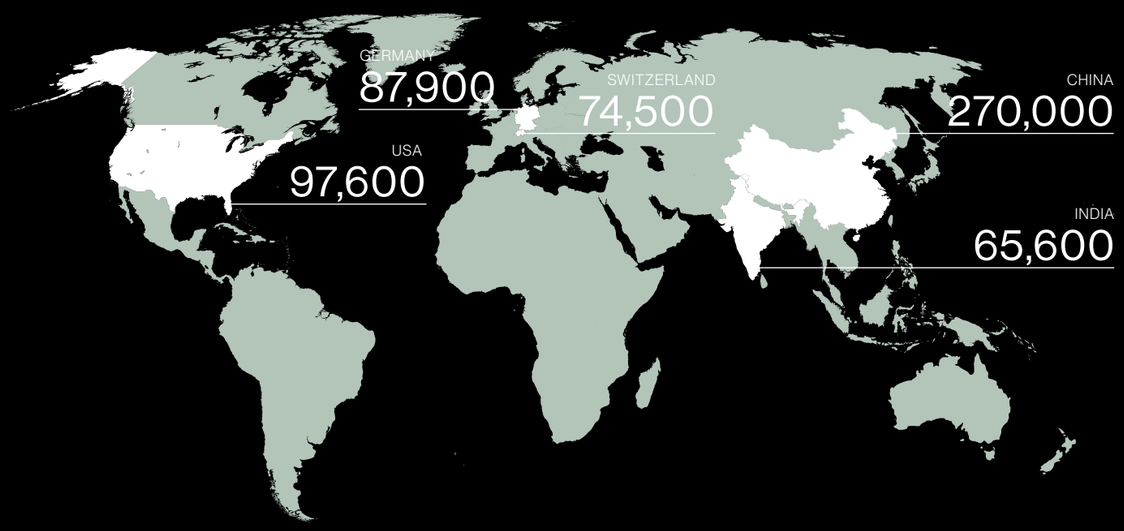


FIGURE 20: TOP EXPORTERS OF MINING AND MINERALS PRODUCTS (2018, MILLION USD)[126]



Total trade value: 1,500,000

FIGURE 21: TOP IMPORTERS OF MINING AND MINERALS PRODUCTS (2018, MILLION USD)[126]



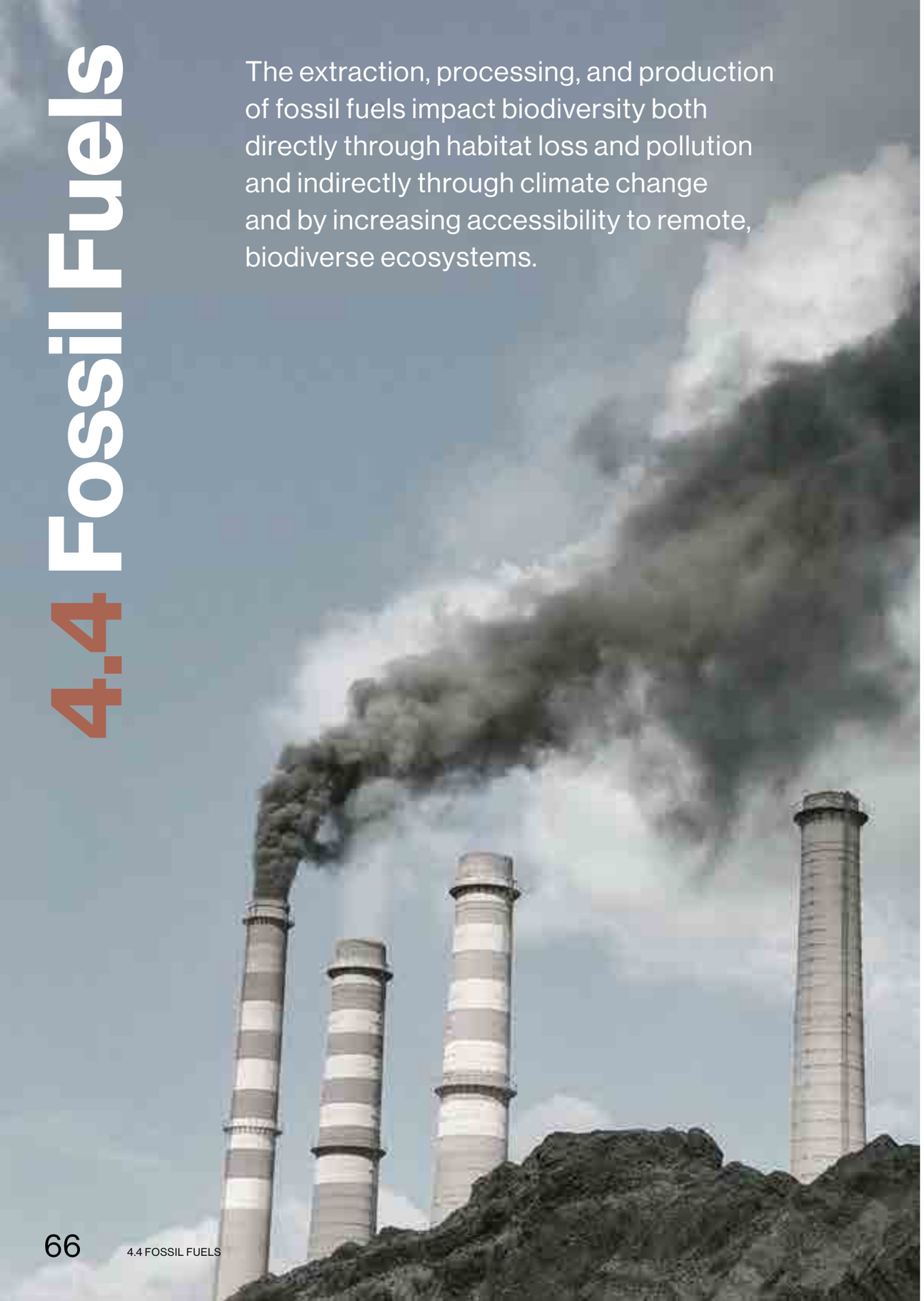
Biodiversity impacts

Direct impacts on biodiversity from the mining of metals include the clearing of native vegetation with follow-on effects such as soil erosion, siltation and pollution of waterways, and the introduction of weeds and invasive species, pests, and diseases of native flora and fauna.[135]

- **Habitat loss and fragmentation** can also occur[136] and is often linked to deforestation with associated impacts on biodiversity. Analysis by the Food and Agriculture Organisation of the United Nations (FAO) estimated that 44 per cent of all operational large-scale mines were located in forests (more than 1,500 mines). A further 1,800 mines located in forests were in development or currently non-operational. Most of the mines are open-pit mines which have the largest environmental impacts.[137] When combining mines that are operational and in development, nearly a third of all forests are potentially impacted by largescale mining projects, with gold, iron ore, and copper being the main metals sourced in forests.[138] This is of particular concern since metal-rich regions often host plants with restricted geographic distribution that can be of exceptional evolutionary value. Research found that surface mining can drive such rare and localised plants to extinction.[139]
- **Infrastructure:** developments enabling mines can also negatively affect biodiversity. Researchers found that in the Amazon, mining increased forest loss up to 70 kilometres beyond mining lease boundaries, causing 11,670 km^2 of deforestation between 2005 and 2015. This extent represents 9 per cent of all Amazon forest loss during this time and 12 times more deforestation than occurred within mining leases alone.[140]
- **Water scarcity and quality**: Most large-scale mines produce large amounts of waste and billions of tonnes of mine tailings (mud-like, toxic waste material) are accumulated every year around the world. The accidental release of mine tailings can have catastrophic biodiversity impacts, in particular on aquatic ecosystems. Failures of tailing dams are not isolated events. In November 2015, a large mine-tailing dam owned by Samarco Corporation collapsed in Brazil. Researchers described the event as “generating a massive wave of toxic mud that spread down the Doce River, killing 20 people, and affecting biodiversity across hundreds of kilometres of river, riparian lands, and Atlantic coast. One year later, of the extent of the disaster is still uncertain. There is evidence that the 7000 km^2 of toxic plume has reached important biodiversity conservation areas in the Atlantic Ocean, including Abrolhos National Park, one of the most emblematic protected areas in Brazil, and three other marine protected areas.” The annual loss of environmental services has been estimated at more than half a billion dollars.[141] In the year 2000, a tailing dam from a gold mine in Romania burst, spilling cyanide-laced water into the Tisza and Danube rivers and killing up to 80 per cent of aquatic life along some stretches.[142] In the past 50 years, 63 major tailing-dam failures have been reported worldwide.[143] Impacts are not limited to large mining operations. Artisanal and small-scale goldmining is the leading source of anthropogenic mercury emissions globally.[144]
- **Deep-sea mining**: The removal of minerals from deep sea ocean floors is an emerging threat to marine ecosystems. As of May 2018, more than 1.5 million km^2 of international seabed has been set aside for mineral exploration in the Pacific and Indian oceans, and along the Mid-Atlantic Ridge. The IUCN expects commercial deep-sea mining to commence in the national waters of Papua New Guinea in 2020. Mining in international waters is expected to commence in 2025.[145] While the exact impacts cannot yet be predicted, scientists concluded it is impossible for the industry to operate without significant impact. Most deep-sea ecosystems targeted for mining are particularly vulnerable since they are often pristine, diverse, dominated by rare species, and very slow to recover. Predicted direct impacts include organism removal at mine sites as well as habitat loss, fragmentation, and modification through altered mineral and sediment composition. Indirect impacts include the smothering of habitat and biota, interference with feeding activities, and the release and spread of nutrient-rich and toxin-laden water from the generation of plumes.[146] In response to suggestions that impacts could be offset out-of-kind, for example by restoring coral reefs in exchange for loss of deep-sea biodiversity, some scientists argued that “the relationship between any gain in biodiversity in an out-of-kind setting and loss of biodiversity in the deep sea is so ambiguous as to be scientifically meaningless.”[147]

4.4 Fossil Fuels

The extraction, processing, and production of fossil fuels impact biodiversity both directly through habitat loss and pollution and indirectly through climate change and by increasing accessibility to remote, biodiverse ecosystems.



Results

Just like mining products, fossil fuels still underpin human societies to a vast extent. Nearly all production, processing, and trade of goods is dependent on the availability of hydrocarbons as energy, automotive and aviation fuel, or ingredients for chemicals and plastics. Amongst the industry sectors identified as most directly linked to fossil fuels, exploration, production, and refining activities have seen by far the largest investments that are at risk of causing biodiversity loss. This contrasts with most other drivers of biodiversity loss, where loans tend to favour industries along the supply chain rather than primary industries.

While the top two recipients of loans (Occidental Petroleum Corporation and the Saudi Arabian Oil Company) are traditional oil and gas companies, the top ten borrowers also included companies focusing on oil and gas trading and transportation as well plastics manufacturers. The top ten lenders were linked to 57 per cent of all loans identified in this sector.

The four largest investors in fossil fuel sectors with risk are all from the USA and the six banks that have the highest ratio of investments to total assets are all located in the USA and Canada, perhaps an indicator of their continuous role in the global fossil fuel economy.

Industry Scope

While the global assessment report by the IPBES includes fossil fuels in mining as a driver for biodiversity loss, in this document the sector is listed separately. This is mainly due to the significant attention it receives from the companies that operate in it as well as from the finance community. As a result, more banks have developed policies to limit their investments in the most carbon-intensive production methods and use.

The scope of the industry is immense. Fossil fuels still provide around 80 per cent of the world's primary energy and sustain the political economy of dozens of countries. The companies that supply and use fossil fuels make up a quarter of the global stock market and half the corporate bond market.[149] The corresponding value of assets within the industry is also enormous. The three main assets are the 900 billion tonnes of coal, oil and gas, valued by the World Bank at USD 39 trillion, the supply infrastructure worth USD 10 trillion, and the demand infrastructure (electricity, transport, and heavy industry) valued at USD 22 trillion.[150]

Even though the overall number of participants in the fossil fuel value chain might be large, 63 per cent of cumulative worldwide emissions of industrial CO_2 and methane between 1751 and 2010 have been traced to only 90 "carbon major" entities. This includes 56 crude oil and natural gas producers, 37 coal extractors (including subsidiaries of oil and gas companies), and seven cement producers.[151]

Global proven reserves of fossil fuels stand at 1,700 billion barrels of oil, 220 trillion cubic metres of natural gas, and 650 billion tonnes of coal.[152] With 85 per cent of the world's CO_2 emissions coming from fossil fuel combustion,[153] dependency on fossil fuels and the biodiversity impacts from global climate change are set to continue for many years to come.

FIGURE 22: TEN BANKS WITH LARGEST FINANCE AT RISK IN THE FOSSIL FUEL SECTOR (2019, MILLION USD)

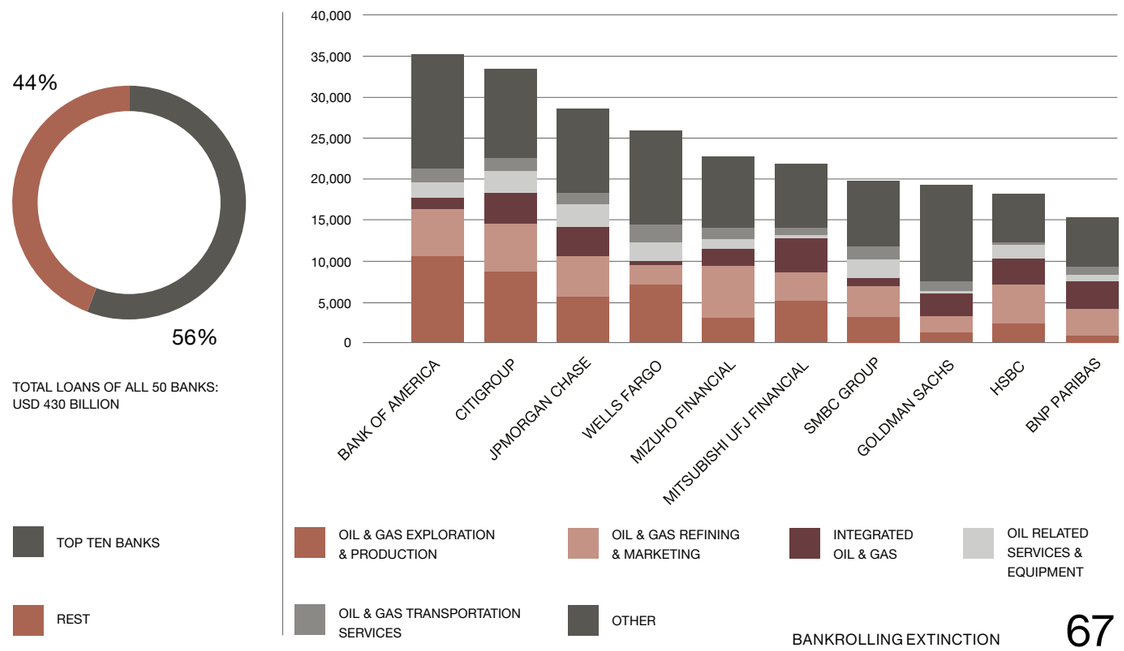


FIGURE 23: INVESTMENTS IN THE FOSSIL FUELS SECTOR IN 2019 AS A PERCENTAGE OF THEIR TOTAL ASSETS

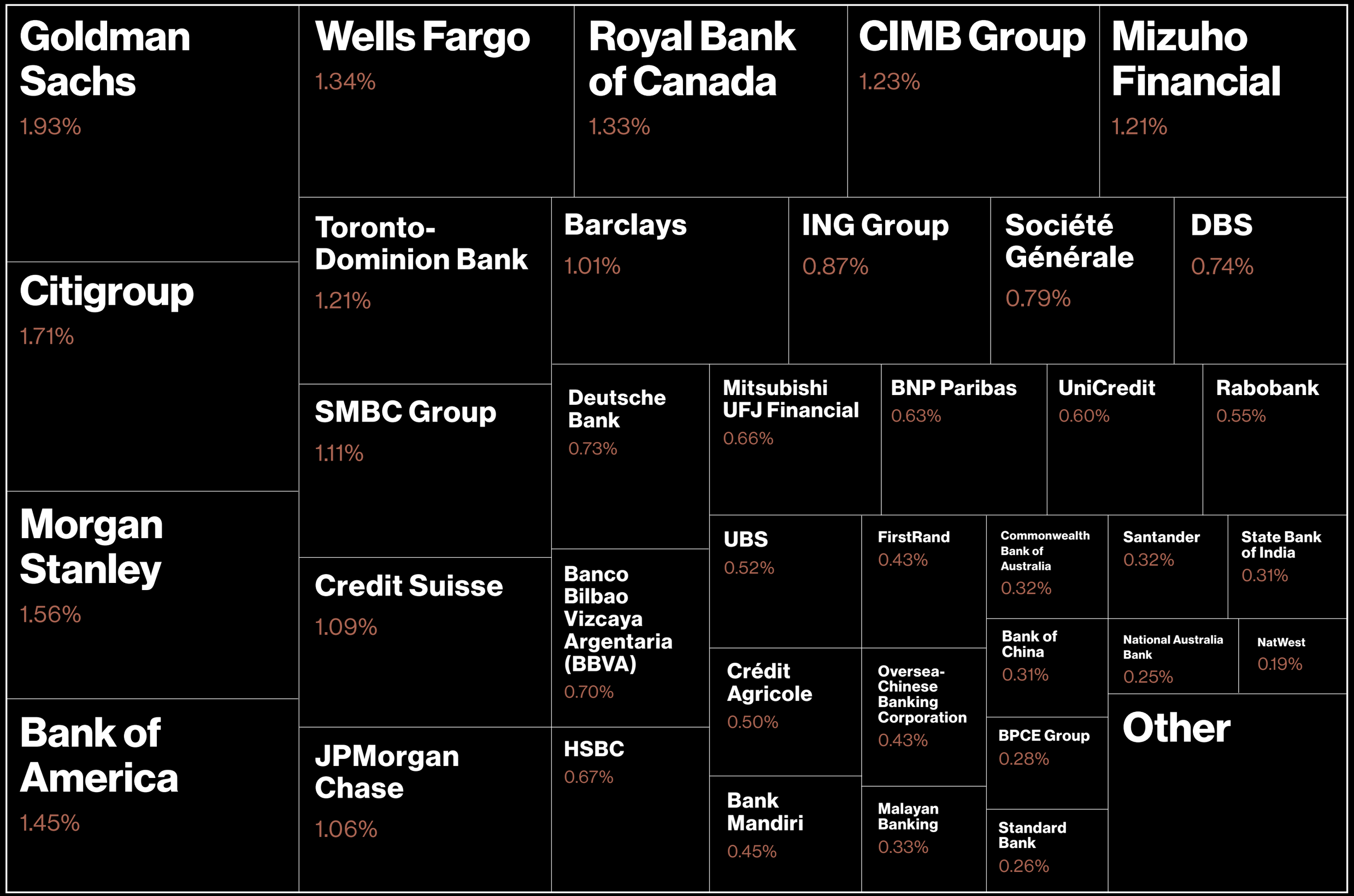
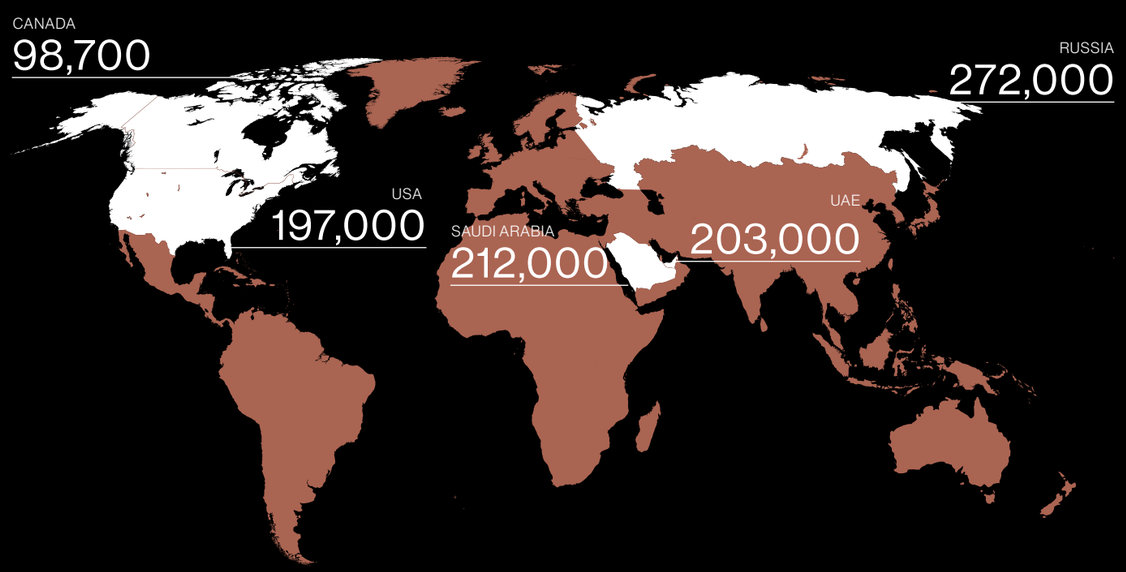
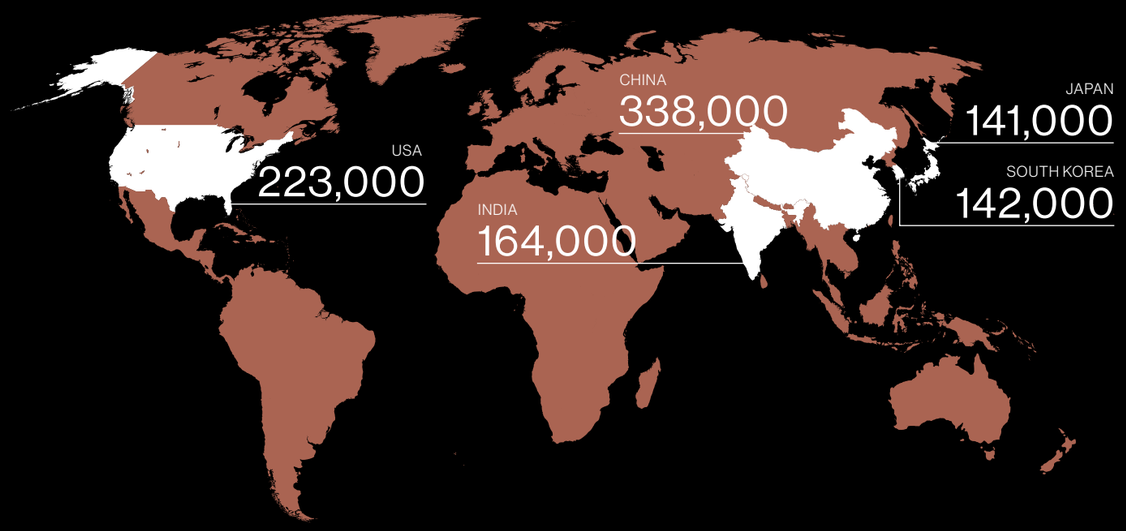


FIGURE 24: TOP EXPORTERS OF FOSSIL FUELS PRODUCTS (2018, MILLION USD)[148]



Total trade value: 2,700,000

FIGURE 25: TOP IMPORTERS OF FOSSIL FUELS PRODUCTS (2018, MILLION USD)[148]



Biodiversity impacts

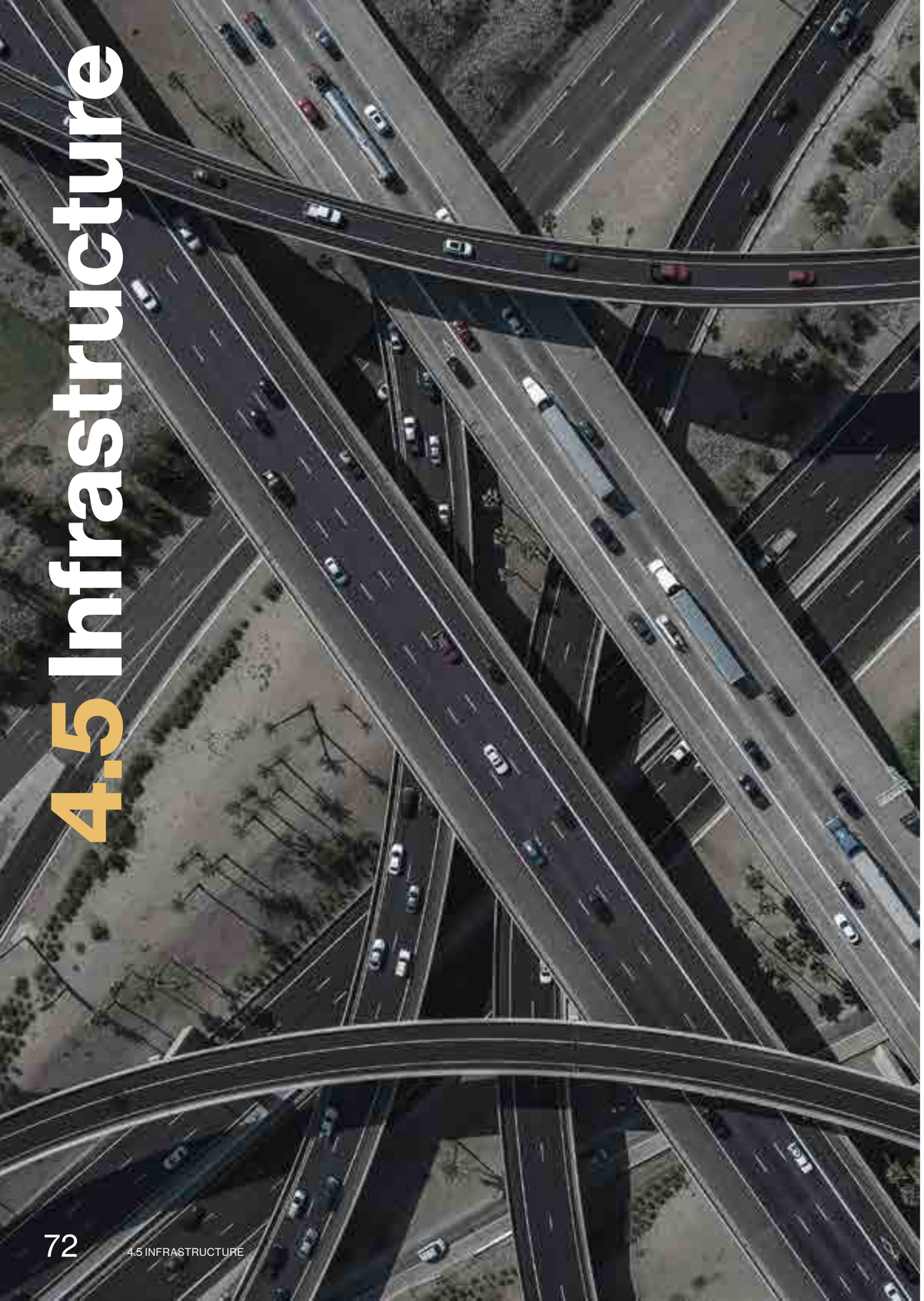
Exploration, production, and refining activities have seen by far the largest investments that are at risk of causing biodiversity loss.

The extraction, processing, and production of fossil fuels impact biodiversity directly through habitat loss and pollution, and indirectly through climate change and increasing accessibility to remote, biodiverse ecosystems.

- **Exploration**: Even prior to extracting fossil fuels, the exploration process can impact biodiversity through habitat conversion and noise pollution from drilling exploratory wells and surveying. Noise from seismic marine surveys have been associated with impacts on many marine taxa including mammals, crustaceans, cephalopods, and fish. In some cases, whale sightings in areas where seismic survey take place were found to decrease by 90 per cent for some species.[154]
- **Extraction**: Effects from the extraction of fossil fuels include local habitat destruction and fragmentation, visual and noise disturbance, and pollution. Indirect effects can be measured many kilometres from the extraction source and include human expansion into previously wild areas, increasing access for loggers, the introduction of invasive species and pathogens, soil erosion, water pollution, and illegal hunting.[155] Biodiversity impacts from fossil fuel extraction can extend beyond terrestrial organisms and also affect below-ground species and freshwater and marine ecosystems. Even the distribution, refining, and use of fossil fuels have direct biodiversity impacts such as habitat destruction associated with infrastructure development and pollution.[156] The direct biodiversity impacts of hydrocarbon extraction are often exacerbated since oil and gas infrastructure tends to be located where species richness is high. In the sea, exploitation is generally located close to the coast, and continental shelves tend to be more biodiverse than the open ocean.[157] It has been estimated USD 3 to 15 trillion worth of unexploited hydrocarbon reserves are located in marine and terrestrial protected areas which could come under pressure of development.[158]
- **Oil Spills**: Some of the most catastrophic direct impacts come from accidents such as oil spills. No single event has tainted the industry as much as the 1989 Exxon Valdez accident which spilled 42 million litres of crude oil over 26,000 km^2 of water in Alaska's Prince William Sound. Hundreds of thousands of marine birds, thousands of otters, and a third of resident orca whales were killed in the immediate aftermath but effects on wildlife continued for decades, sometimes outweighing the acute mortality from the spill event.[159]

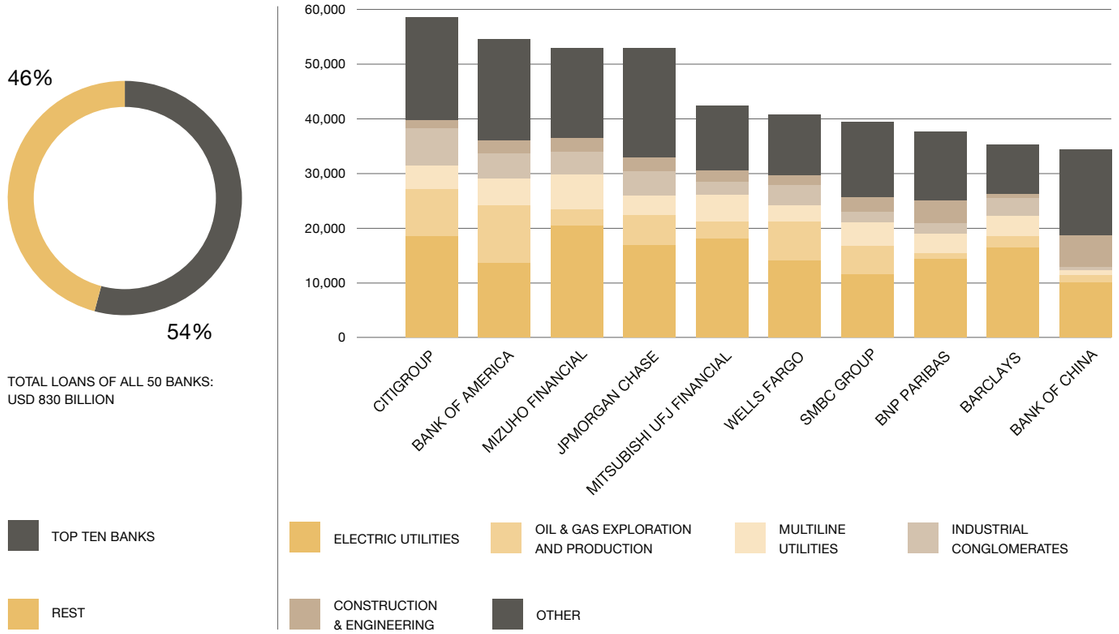
  Oil spill accidents are not limited to fossil fuel transportation. The oil leak from the Deepwater Horizon drilling rig is considered to be the largest marine oil spill in the history of the petroleum industry. Nearly 800 million litres of oil were released into the Gulf of Mexico over 87 days in 2010, covering an area of 150,000 km^2. Thousands of protected species including turtles, dolphins, and whales were exposed and oil-associated health effects of some turtle species lead to a 50 per cent decline in their population.[160]
- **Climate Change**: The most significant indirect impact on biodiversity from fossil fuel extraction is contribution to climate change. There is consensus among scientists that climate change already affects biodiversity and is likely to become one of the most significant drivers of biodiversity loss by the end of the century.[161] Impacts include the loss or degradation of habitat, changes in temperature or water availability outside of tolerable thresholds, the loss of important interactions between species, and the arrival of new diseases.[162]

- Broader climate change impacts on biodiversity, identified in the fifth assessment of the IPCC, include coral bleaching, an increase of hypoxic areas ("dead zones"), and changes in species distribution in oceanic ecosystems. In terrestrial ecosystems, the increases in wildfires are especially noticeable in the Amazon and forests of Southeast Asia during the annual fires season, but changes in air temperature can also lead to increased tree mortality. Temperature increases of about 1.4° or more can result in abrupt and irreversible changes in the appearance and functioning of ecosystems.[163] The distribution of nearly half (47 per cent) of land-based flightless mammals, and almost a quarter of threatened birds, may already have been negatively affected by climate change.[164] Using average global warming forecasts, scientists have also predicted climate change could result in the extinction of up to a third of species. Under more extreme warming scenarios, more than half of the species surveyed could be lost.[165]



4.5 Infrastructure

FIGURE 26: TEN BANKS WITH LARGEST FINANCE AT RISK IN THE INFRASTRUCTURE SECTOR (2019, MILLION USD)



Key infrastructure linked to biodiversity impacts includes roads, dams, and the production and use of cement

Results

Infrastructure has seen the largest investment of all biodiversity-related sectors, followed by mining and fossil fuels. One explanation for this is the reliance on significant infrastructure investments by some industries that are also linked to other drivers of biodiversity loss, with the exploration and production as well as refining of fossil fuels being one example. The three largest industry activities included in this driver of biodiversity loss are construction and engineering, electric utilities, and industrial conglomerates.

With more than USD 800 billion of loans and financing linked to direct and indirect biodiversity impacts, this sector received the largest amount of funding, though the actual biodiversity impacts from the sector are much smaller than those caused by the food production system for instance.

Of note here is that the Bank of China entered the list of the ten largest lenders who provide finance with risk of having biodiversity impacts. Amongst the largest borrowers of finance associated with infrastructure are companies operating in the fossil fuel sector, as well as large, international construction companies and corporations focusing on electric utility infrastructure.

Many companies related to fossil fuels can also be found amongst the largest borrowers for loans linked to infrastructure, in addition to large, international construction companies and corporations focusing on electric utility infrastructure.

Industry Scope

Infrastructure is critical for economic and social development and is required for most basic human needs such as access to water, power, and transport. Roads, railways, air and seaports are necessary for local, regional, and international movement of people and goods. The Global Infrastructure Outlook argues that by 2040, additional infrastructure worth USD 95 trillion will need to be built, comprised of USD 34 trillion for roads, USD 28 trillion for energy, USD 11 trillion for rail, USD 8.9 trillion for telecommunications, USD 6.4 trillion for water, and USD 4.9 trillion for airports and seaports.[168]

Key infrastructure linked to biodiversity impacts includes roads, dams, and the production and use of cement. While estimates vary when it comes to the total length of the global road network, recent studies state there are 21 million kilometres of roads on the planet.[169] An analysis on the Amazon found that deforestation was much higher near roads and rivers than elsewhere in the region. Nearly 95 per cent of all deforestation occurred within 5.5 kilometres of roads or 1 kilometre of rivers.[170] There are also about 50,000 large dams (higher than 15 metres), and an estimated 16.7 million reservoirs (larger than 0.01 ha) hold approximately 8,070 km^3.[171] Many large infrastructure projects rely on concrete for their construction, and the global production of concrete is estimated to be around 12 billion tons per year.[172] The value of the ready-mix concrete market alone is more than USD 650 billion and expected to rise to USD 1.2 trillion by 2027.[173]

FIGURE 27: INVESTMENTS IN THE INFRASTRUCTURE SECTOR IN 2019 AS A PERCENTAGE OF THEIR TOTAL ASSETS

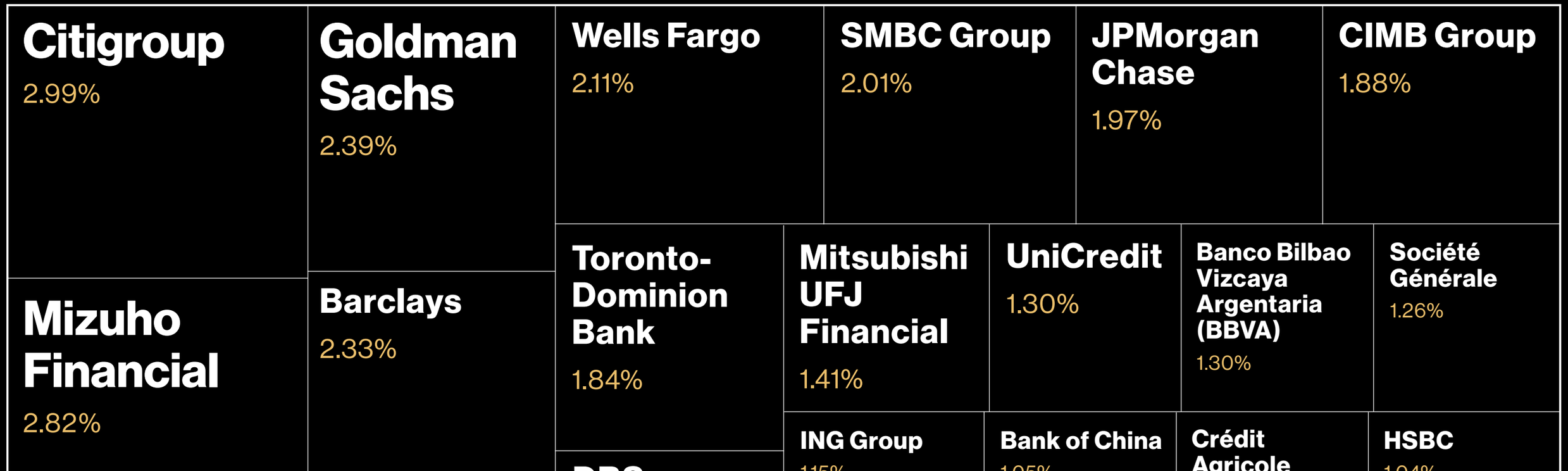


FIGURE 28: INFRASTRUCTURE EXPENDITURE NEEDED (2019, MILLION USD)[166]

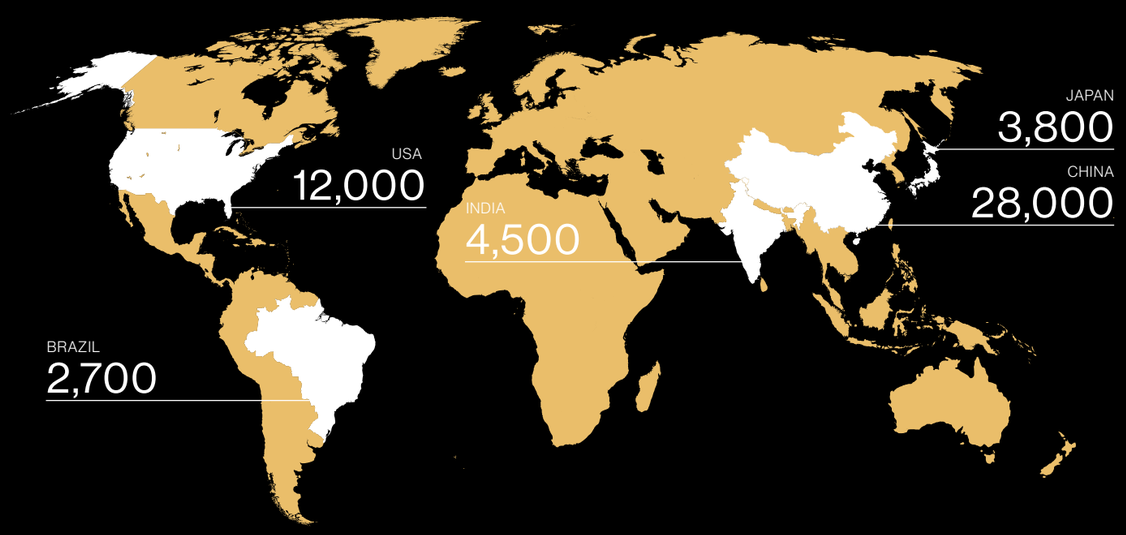
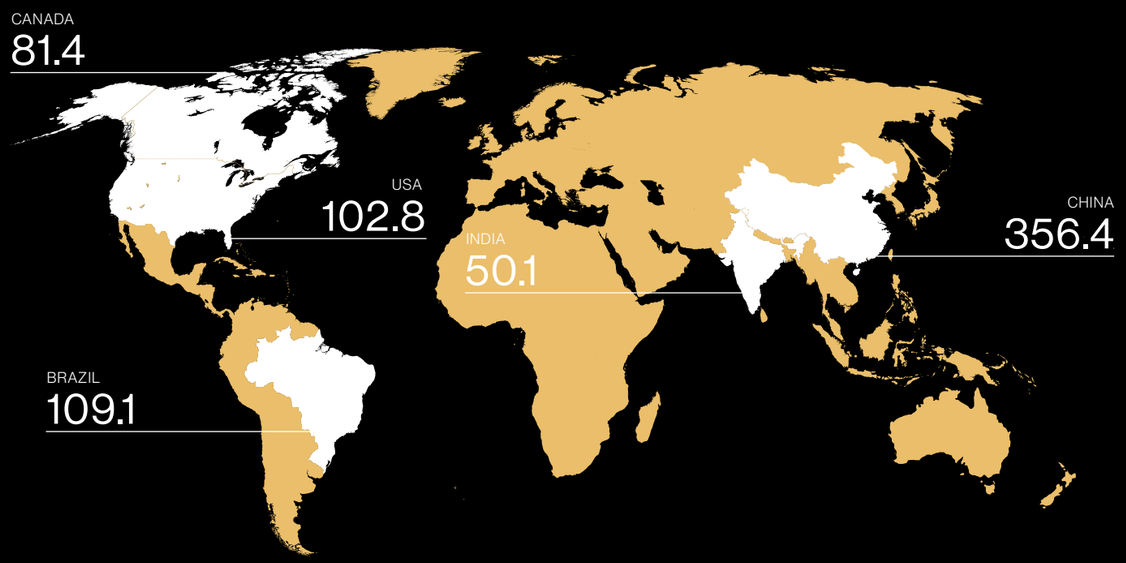


FIGURE 29: HYDROPOWER CAPACITY INSTALLED BY COUNTRY (2019,GW)[167]



Biodiversity impacts

Infrastructure projects can come with severe direct and indirect impacts on biodiversity.

- **Roads:** Roads can have long-lasting biodiversity impacts since they open access to previously undisturbed areas. This results in habitat fragmentation, deforestation, and reduced wildlife abundance though disturbance, mortality (road kills), and overhunting, particularly in tropical regions. Over the last few decades, studies in a variety of terrestrial and aquatic ecosystems have demonstrated that many of the world's most pervasive threats to biological diversity are directly or indirectly linked to roads.[174] Even though new roads have led to loss of forest, such as in biodiverse tropical habitats across Latin America, some positive effects have been recorded in more highly-populated and developed areas such as within India.[175] Nevertheless, some of the largest increases in road length are forecast for the most vulnerable and biodiverse regions on earth including the Amazon, Congo Basin, and New Guinea.[176] In the Congo Basin, unpaved logging roads used by timber firms, as well as paved and unpaved public roads, increased by 60 per cent between 2003 and 2018, and doubled within forest concessions. Annual deforestation rates within 1 kilometre of the roads increased markedly.[177] In Europe, researchers found that integrating roadless areas into biodiversity conservation networks would be an important contribution to achieve the goals of the European Union's 2020 Biodiversity Strategy.[178]
- **Hydropower:** Hydropower is currently the largest renewable electricity source and is forecast to meet 16 per cent of global electricity demand by 2023.[179] Much of the electricity generated by hydropower comes from dams which are linked to biodiversity impacts. The freshwater habitats in which dams are located cover only about 0.8 per cent of Earth's surface, yet they host a disproportionately high diversity of species.[180]
One-third of the described vertebrates, including about 40 per cent of the fish species, are found in freshwater environments. Damming rivers is one of the main threats to freshwater biodiversity through obstruction of migration routes which are essential for spawning and feeding.[181] This can even lead directly to the extinction of genetically distinct stocks or species.[182]
Other impacts include the outright destruction of biodiverse habitats through flooding. Dams can also lead to river sediment starvation and ultimately coastal erosion in delta regions and estuaries with negative consequences on habitats.[183]
At least 3,700 major dams, each with a capacity of more than 1MW, are either planned or under construction, primarily in countries with emerging economies. While these dams are predicted to increase the present global hydroelectricity capacity by 73 per cent, they will reduce the number of remaining free-flowing large rivers on the planet by about 21 per cent.[184] Some of the dams that are planned or already under construction are predicted to have devastating impacts on biodiversity. For instance in Indonesia, China's state-owned Sinohydro is building the Batang Toru dam and there are concerns it will flood and alter the habitat of the critically endangered Tapanuli orangutan, of which less than 800 individuals remain, making it unlikely for the species to survive.[185] Both the World Bank and the International Finance Corporation have backed out of funding the project due to the environmental sensitivity of the area.[186]
- **Concrete:** As the most-used construction material worldwide, concrete also has detrimental environmental impacts. The production of concrete is responsible for 9 per cent of global industrial water withdrawals and by 2050, 75 per cent of the water demand for concrete production will likely occur in regions that are expected to experience water stress.[187] The extraction of raw materials needed for concrete production (such as sand, gravel, and limestone for cement) poses major risks to biodiversity and ecosystems. These impacts can contribute to habitat degradation, fragmentation, and loss, and pose a significant risk to business operations.[188] Production of cement (used as a binder in concrete) is also responsible for up to 8 per cent of the world's CO_2 emissions,[189] thereby contributing to biodiversity impacts from climate change.

4.6 Tourism

Results

Amongst the seven human activities that drive global biodiveristy loss included in this analysis, tourism receives the least amount of investment.

The Thomson Reuters Business classification (TRBC) codes that can be linked to tourism are airlines, hotels, motels and cruise lines, and restaurants and bars. These three sectors are nearly evenly split in their loan contributions. It is likely that many of the loans to tourism ventures with significant biodiversity impacts are provided by smaller, local banks and may therefore be underestimated in this methodology. Furthermore, the structure of TRBC codes does not lend itself well to identify economic activities linked to tourism.

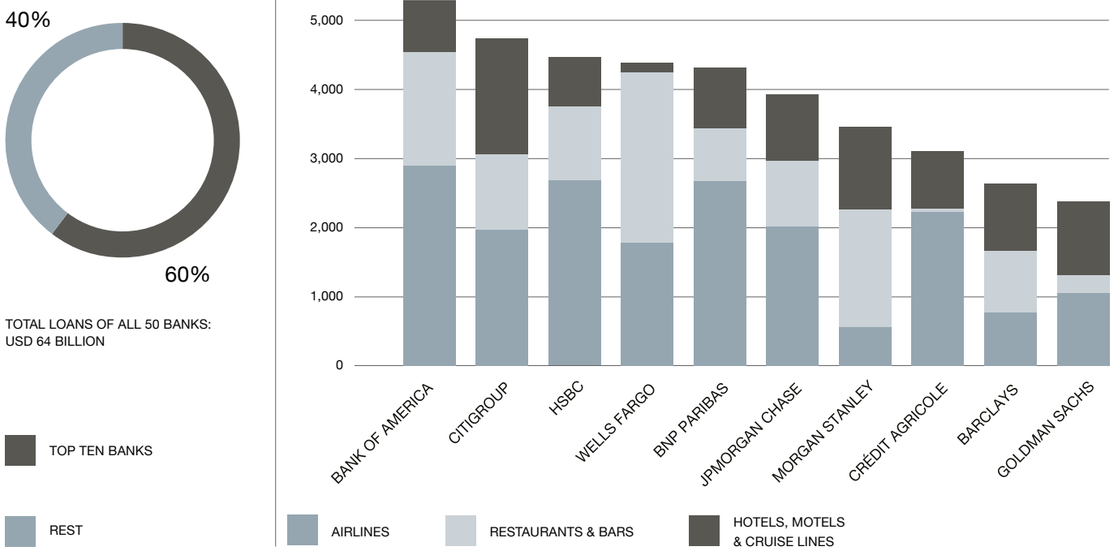
With just under USD 65 billion of finance identified, companies linked to the tourism sector received the smallest amount of loans. One reason for this is the difficulty in matching areas of potential biodiversity impacts with the relevant business codes. Fast food restaurant chains, cruise lines, and hotel chains were among the individual companies that received the largest loans. Of note is that a significant percentage of loans have the potential for direct impacts on biodiversity, while the top ten lenders remain largely unchanged from previous sectors. Forty-seven per cent of all loans identified as having biodiversity impact risk were linked to the top ten lenders.

Industry Scope

Tourism is one of the world's largest industries and in 2019 it contributed about USD 9 trillion to the global economy and made up 10.3 per cent of global GDP.[191] Its proportion of regional GDP was particularly high in the Caribbean, Southeast Asia, and Oceania. The World Travel and Tourism Council estimates that 330 million jobs are linked to tourism around the world.[192] Tourism has consistently grown for six decades and has become an important sector globally and locally. It makes significant contributions to job creation, export revenue, and domestic industries. In 2019, international tourist arrivals reached 1.5 billion for the first time. Within OECD countries every tourism dollar spent by international visitors generates 89 cents of domestic value more than overall exports.[193] Tourism has become an increasingly diversified phenomenon enabled by the transformation of largely developed societies moving from economies based on production to those based on services and consumption. Increases in paid holiday time for employees also enabled the global tourism industry.[194] Tourism has been described as the largest scale movement of goods, services, and people that humanity has ever seen.[195]

However, the sector has been hit particularly hard by the COVID-19 pandemic and with global travel restrictions, it is predicted up to 100 million tourism jobs could be at least temporarily lost.[196]

FIGURE 30: TEN BANKS WITH LARGEST FINANCE AT RISK IN THE TOURISM SECTOR (2019, MILLION USD)



Tourism can contribute to scarce funds for conservation and provide local people with an economic incentive to protect biodiversity.

FIGURE 31: INVESTMENTS IN THE TOURISM SECTOR IN 2019 AS A PERCENTAGE OF THEIR TOTAL ASSETS

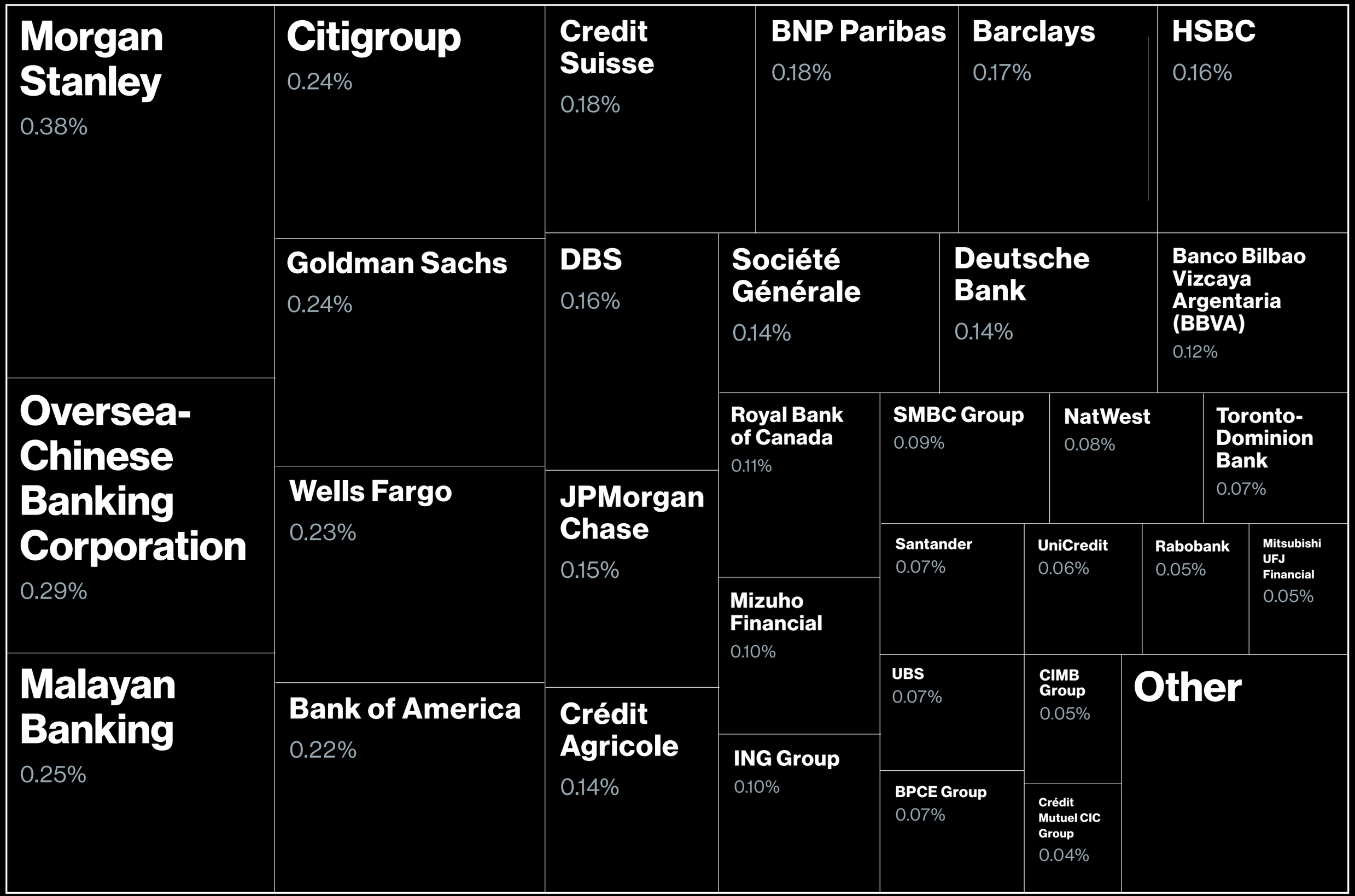
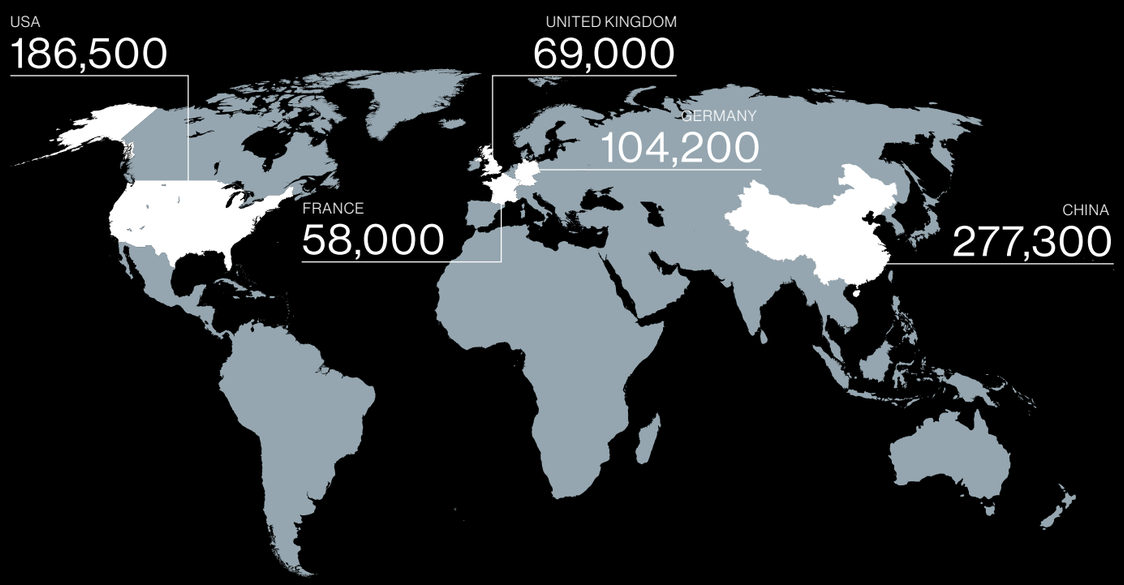
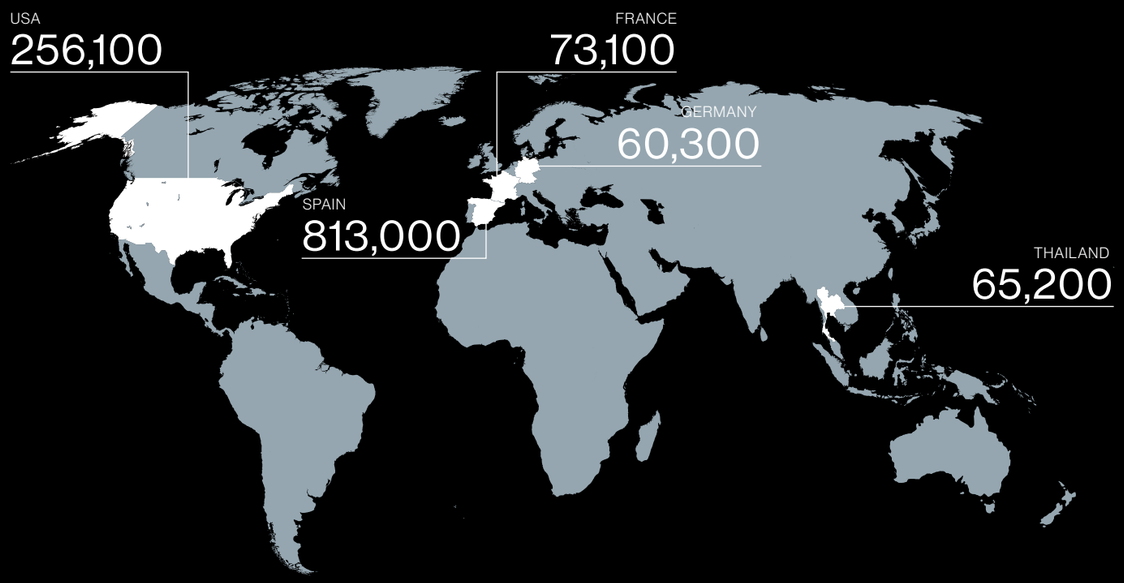


FIGURE 32: TOP SPENDERS IN INTERNATIONAL TOURISM (2018, MILLION USD)[190]



Total expenditure: 1,600,000

FIGURE 33: TOP RECIPIENTS OF INTERNATIONAL TOURISM (2018, MILLION USD)[190]



Biodiversity impacts

Much of tourism is based on an appreciation of biodiversity and its role in the creation of national parks and reserves, as well as in helping conserve mega-fauna.[197] Tourism can have positive effects for biodiversity and can reduce the impact on endangered species who tend to be valued higher in more affluent societies. It has been argued that a 10 per cent increase in income is able to mitigate biodiversity loss linked to threatened species by 3 to 4 per cent.[198] Tourism can contribute to scarce funds for conservation and provide local people with an economic incentive to protect biodiversity as well as provide an alternative to other, potentially more damaging forms for development.[199]

However, tourism can also have negative effects on the environment, and biodiversity loss in particular.

- **Infrastructure:** Infrastructure for tourism usually requires significant tracts of land and building materials. Development can often take place in an unplanned manner that completely and rapidly transforms landscapes. Significant biodiversity loss from deforestation and the draining of wetlands has been linked to the establishment of tourism ventures, which is of particular concern, given tourism often occurs in fragile areas such as coastal zones, mountains and protected areas. Uncontrolled mass tourism has been identified as one of the root causes of coastal degradation.
- **Pollution:** Littering and water pollution from tourism can also have negative consequences for biodiversity conservation, especially in remote areas where waste removal is logistically difficult. The depletion of local resources provides additional pressure on biodiversity.[200]
- **Invasive species:** Since the 17th century, invasive alien species have contributed to nearly 40 per cent of all animal extinctions for which the cause is known, and 480,000 species have been accidentally or deliberately introduced to locations outside the natural limits of their geographic range. Tourism contributes to this phenomenon.[201]
- **Cruise Ships:** ships are linked to direct biodiversity impacts including transporting invasive species into ports, affecting sensitive and endemic plants and animals. Wildlife patterns can be changed as animals are conditioned to come near approaching cruise ships. Of the 109 countries globally with coral reefs, almost half of them have seen damage from cruise ship anchors, sewage dumping, tourists breaking off chunks of coral, and commercial harvesting for sale to tourists.[207] Despite many jurisdictions having strict legislation that prohibits the dumping of waste, this is not always adhered to. In 2019, Carnival Corporation agreed to a fine of USD 20 million for violations that included the dumping of plastic waste in the ocean. In 2016, the company was also fined USD 40 million for what had been described at the time as the "largest-ever criminal penalty involving deliberate vessel pollution."[208] UNEP has identified tourist ships as one of the principal pollution sources of marine eco-systems.[209]

Finally, CO^2 emissions from tourism are a significant contributor to climate change, thereby contributing to biodiversity loss from climate change. A peer-reviewed study from 2018 estimates that 8 per cent of global greenhouse gas emissions are linked to the tourism sector, and in particular transport, shopping, and food. Researchers found the rapid increase in tourism demand is outstripping the decarbonization of tourism-related technology.[210]

Example: Coral Reefs/ Sunscreen

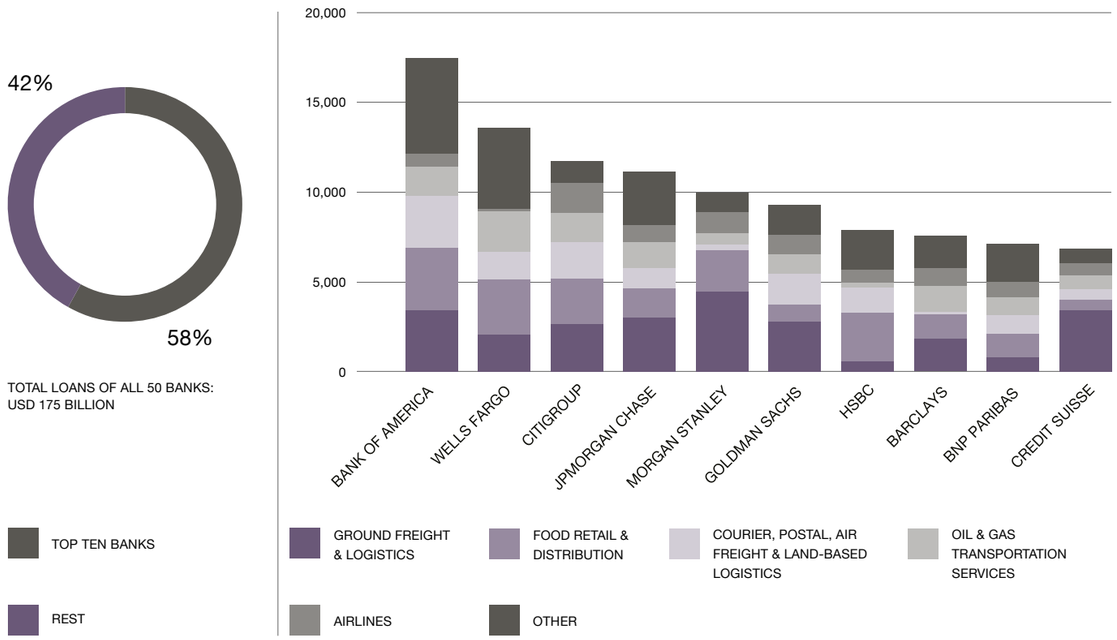
One key area of biodiversity impact occurs in coral reefs which are amongst the most biodiverse ecosystems on the planet. Coral reef-linked tourism has been valued at USD 36 billion a year,[202] with recreational diving and snorkelling on reefs one of the fastest growing tourism sectors globally.

- Studies in Thailand found coral reefs at low-use dive sites were twice as likely to be healthy compared to high-use sites. There was a three-fold increase in the presence of coral diseases at high-use sites in addition to higher rates of physical injuries and tissue necrosis from sediments.[203]
- Corals are extremely sensitive to changes in temperature and changes in water quality. Small increases in the supply of nutrients, for instance, can promote algal encroachment, and enable algae to outcompete and kill coral.[204]
- Sunscreen from hundreds of thousands of tourists that washes into the ocean has also been linked to severe impacts on coral reefs. Two ingredients, oxybenzone and octinoxate, can be found in up to 80 per cent of sunscreens and also in a number of personal care products such as soaps, shampoos and insect repellents. Studies have shown direct toxic effects on corals.[205]
- Thousands of tonnes of sunscreen is washed into the ocean every year. As result of these concerns, Hawaii has passed legislation to ban the two most common sunscreen ingredients from January 1, 2021.[206]

4.7 Movement of Goods and People

Food retail and distribution, ground freight and logistics, and oil and gas transportation services are key industry activities which receive the majority of loans under this driver of biodiversity loss.

FIGURE 34: TEN BANKS WITH LARGEST FINANCE AT RISK IN THE MOVEMENT OF GOODS AND PEOPLE SECTOR (2019, MILLION USD)



Results

Food retail and distribution, ground freight and logistics, and oil and gas transportation services are key industry activities which receive the majority of loans under this driver of biodiversity loss.

The ten largest banks providing finance to this sector in both absolute and relative terms (as a percentage of assets) are all headquartered in North America and Europe. The banks accounted for 58 per cent of all loans linked to direct or indirect biodiversity risks in this sector.

Industry Scope

The transportation and logistics sectors are vital engines of global economies which depend on the largely uninhibited movement of people and goods. Globalisation and the associated expansion of international trade, as well as complicated and fragmented supply chains, have made it essential for countries to improve their logistics capacity.[211]

Transporting goods from locations where they are sourced to locations where they are demanded links a company to its suppliers and customers, and also involves forecasting demand, planning inventory, and storing goods.[213] All industries depend on the logistics sector, which also affects important economic indicators such as rates of inflation, interest, productivity, and energy costs and availability.[214] Furthermore, the logistics industry provides significant macro-contributions to national economies by creating employment, national income, and foreign investment. It also is a key industry in increasing the competitive power of corporations.[215]

Evaluating the size of the global logistics market is dependent on the definitions used and the sector is relatively ill-defined. Estimates range between USD 5 trillion and USD 12 trillion.[216,217] It has been argued that about 12 per cent of global GDP can be linked to the logistics industry, with 43 per cent of industry's value generated by the trucking sector, 22 per cent by inventory carrying, and 11 per cent by logistics administration. Just over 7 per cent of the total value is linked to water transport, while air and rail transport can claim about 3 per cent each.[218]

FIGURE 35: INVESTMENTS IN THE LOGISTICS AND TRANSPORTATION SECTOR IN 2019 AS A PERCENTAGE OF THEIR TOTAL ASSETS

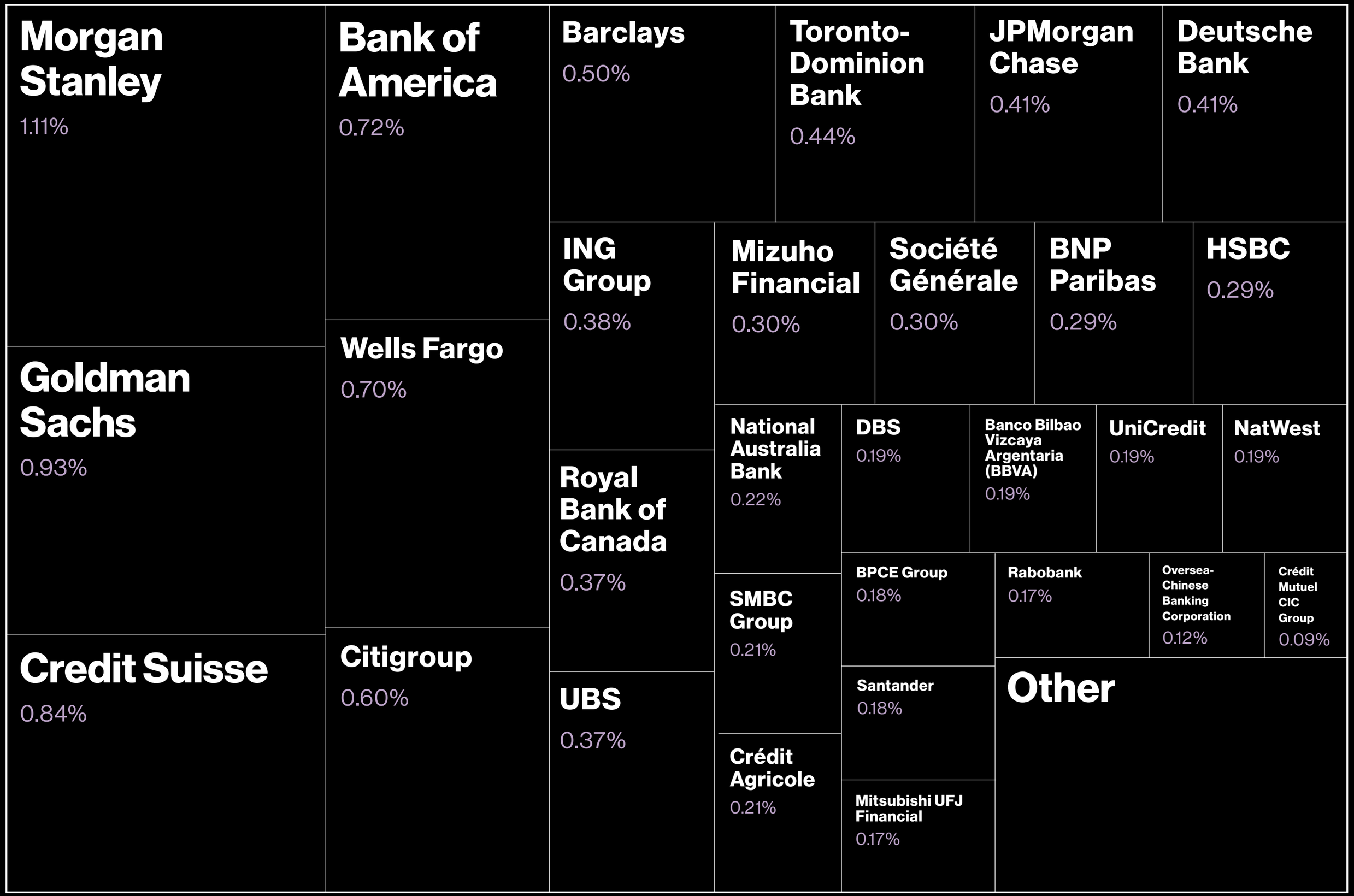
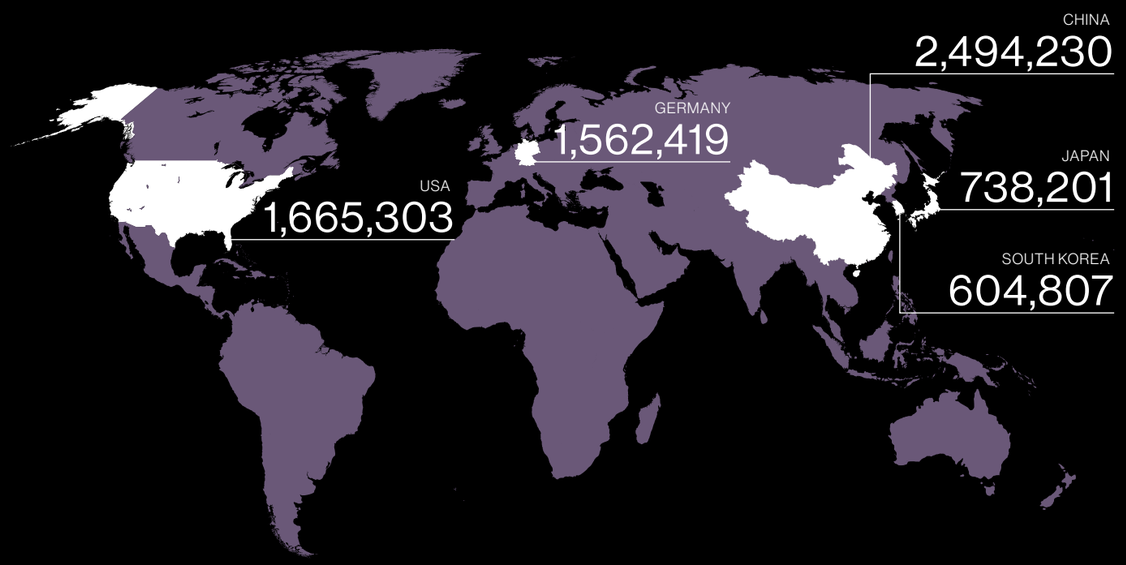
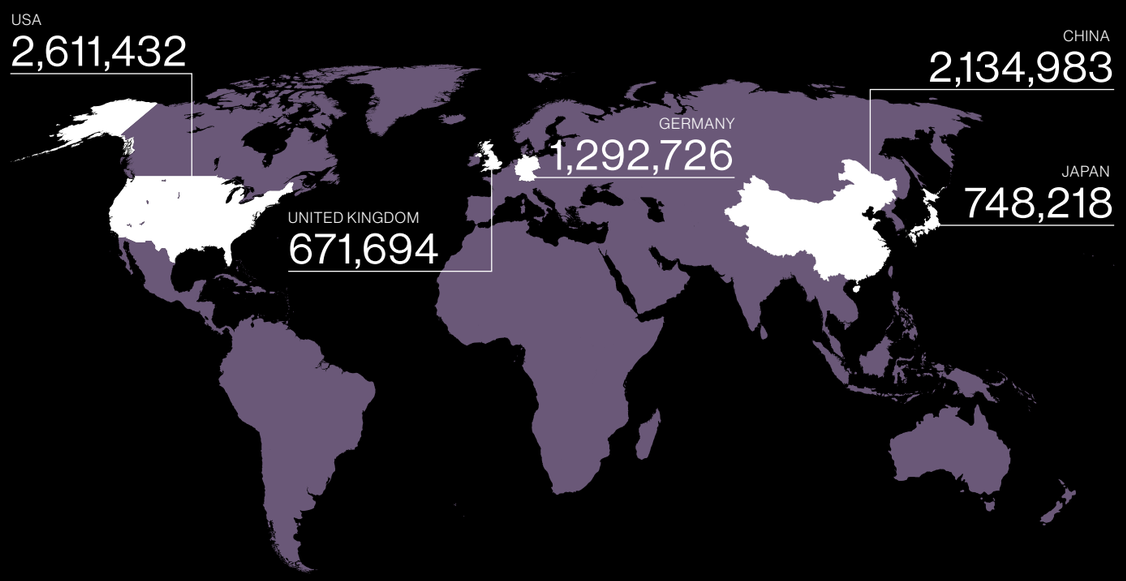


FIGURE 36: TOP EXPORTERS OF GLOBAL COMMODITIES (2018, MILLION USD)[212]



Total trade value: 19,000,000

FIGURE 37: TOP IMPORTERS OF GLOBAL COMMODITIES (2018, MILLION USD)[212]



Biodiversity impacts

During the 20th century, links between transportation and the environment emerged much more strongly than before, particularly with the massive expansion of modes such as the automobile and airplane. At the same time, manufacturing and marketing concepts such as 'planned obsolescence' generated the design of transported products, including automobiles, that could be continuously replaced. The 1960s and 1970s were crucial decades in the realisation of the negative environmental impacts of human activities and the need for regulations.[219]

- **Non-terrestrial transport:** Both airborne and seaborne transportation of goods and people has risen dramatically in recent years, causing increased pollution and a significant rise in invasive species.[220]
  - **Adverse effects:** Adverse effects on biodiversity from maritime transport include pollution from chemicals that enter the marine environment following collisions, groundings, or other accidents. While less often documented, discharges from operational activities also lead to adverse effects on marine habitats and species, as can damage from anchoring and propeller scarring.[221] In addition, waste generated by the operations of vessels at sea or in port can contain very high levels of bacteria that can be hazardous for public health, as well as marine ecosystems, when discharged in waters.[222]
  - **Noise pollution:** Maritime transport can affect marine mammals since they rely heavily on sound to communicate, coordinate their movements, navigate, exploit and investigate the environment, find prey, and avoid obstacles, predators or other hazards. Noise from seismic surveys or construction works, such as pile driving for port or bridge construction, can severely interfere with the lives of marine mammals and cause them to abandon their habitat, alter their behaviour, or mask their acoustic signals over large areas.[223] Furthermore, dredging activities to enable transport can modify the hydrology by creating turbidity that can affect marine biological diversity.
  - **Collisions:** Collisions between ships and whales, other marine mammals, and turtles are regularly reported globally. In some cases, such as the North Atlantic right whale, this can be a serious threat to the survival of the species. Even when the frequency of such collisions does not threaten the species at the population level, it can be a major cause of human-induced mortality.[224]
- **Terrestrial Transportation:** Terrestrial transportation often requires draining land, thus reducing wetland areas and driving out water plant species. Roads and railway lines have restricted the growth of certain plants or produced changes in ecosystems with the introduction of new species. It has also been argued that animal species are becoming endangered because of changes in their natural habitats, including fragmentation resulting from transportation infrastructures. Toxic fuel and oil spills from motor vehicles are washed on roadsides and contaminate the soil. Hazardous materials and heavy metals have been found in areas contiguous to railroads, ports, and airports.[225]

Overall, the transport and logistics sector is responsible for nearly a quarter of the total energy-related CO_2 emissions, making it a major contributor to global warming and its biodiversity impacts. More than 70 per cent of transport-related emissions originate from road transportation.[226]

Overall, the transport and logistics sector is responsible for nearly a quarter of the total energy-related CO_2 emissions, making it a major contributor to global warming and its biodiversity impacts

5

Appendix: Methodologies

5.1 Finance Calculation Methodology

The research to quantify the loans for each bank was carried out by Profundo. The names of the banks and the business codes to include in the research were provided to Profundo by portfolio.earth.

5.1.1 Scope selection methodology

The research analyses financial flows provided by 50 banks in the form of loans and underwriting services to a selection of sectors considered as having a substantial impact on biodiversity. The banks and sectors selected for the analysis are detailed in the following sections.

5.1.1.1. Banks selection

The 50 selected banks are active worldwide and are part of the S&P Global 100 list or are significant due to operating in regions and countries where biological diversity and activities impacting it is particularly pronounced.

Table 2: Banks included[227]

S&P GLOBAL BANK	BANK	COUNTRY	REGION	ASSETS (MILLLION USD)
1	Industrial and Commercial Bank of China	China	Asia & Pacific	4,324,270
2	China Construction Bank	China	Asia & Pacific	3,653,110
3	Agricultural Bank of China	China	Asia & Pacific	3,572,980
4	Bank of China	China	Asia & Pacific	3,270,150
5	Mitsubishi UFJ Financial	Japan	Asia & Pacific	2,992,970
6	HSBC	UK	Europe	2,715,150
7	JPMorgan Chase	USA	North America	2,687,380
8	Bank of America	USA	North America	2,434,080
9	BNP Paribas	France	Europe	2,429,260
10	Crédit Agricole	France	Europe	2,256,720
12	SMBC Group	Japan	Asia & Pacific	1,954,780
13	Citigroup	USA	North America	1,951,160
14	Wells Fargo	USA	North America	1,927,560
15	Mizuho Financial	Japan	Asia & Pacific	1,874,890
16	Santander	Spain	Europe	1,702,610
17	Société Générale	France	Europe	1,522,050
18	Barclays	UK	Europe	1,510,140
19	BPCE Group	France	Europe	1,501,590
21	Deutsche Bank	Germany	Europe	1,456,260
23	Royal Bank of Canada	Canada	North America	1,116,310
24	Lloyds Banking Group	UK	Europe	1,104,420
25	Toronto-Dominion Bank	Canada	North America	1,102,040
27	Intesa Sanpaolo	Italy	Europe	1,057,820
28	Norinchukin Bank	Japan	Asia & Pacific	1,011,140
29	ING Group	Netherlands	Europe	1,000,720
30	Goldman Sachs	USA	North America	992,970
32	Crédit Mutuel CIC Group	France	Europe	976,140
33	UBS	Switzerland	Europe	972,180
34	UniCredit	Italy	Europe	960,210
36	NatWest	UK	Europe	957,600
39	Morgan Stanley	USA	North America	895,430
41	Credit Suisse	Switzerland	Europe	812,910
42	Banco Bilbao Vizcaya Argentaria (BBVA)	Spain	Europe	782,160
44	Commonwealth Bank of Australia	Australia	Asia & Pacific	688,400
47	Rabobank	Netherlands	Europe	662,770
49	DZ Bank	Germany	Europe	627,310
52	National Australia Bank	Australia	Asia & Pacific	571,340
55	State Bank of India	India	Asia & Pacific	561,740
60	Sberbank	Russia	Europe	482,530
61	Shinhan Financial Group	South Korea	Asia & Pacific	478,500
66	DBS	Singapore	Asia & Pacific	430,450
76	Oversea-Chinese Banking Corporation	Singapore	Asia & Pacific	365,570
77	Banco do Brasil	Brazil	South America	365,510
79	Bradesco	Brazil	South America	345,210
na	HDFC Bank	India	Asia & Pacific	214,338
na	Malayan Banking	Malaysia	Asia & Pacific	202,914
na	Standard Bank	South Africa	Africa	156,471
na	CIMB Group	Malaysia	Asia & Pacific	139,404
na	FirstRand	South Africa	Africa	118,709
na	Bank Mandiri	Indonesia	Asia & Pacific	94,653

5.1.2 Sectors selected

The selection of sectors was based on Thomson's TRBC classification. The TRBC includes five levels of classification. From the largest to the most detailed:

Economic Sector
Business Sector
Industry Group
Industry
Activity

The 2012 schema, which consists of 10 economic sectors, 28 business sectors, 54 industry groups, 136 industries and 837 activities, can be found at: https://www.refinitiv.com/content/dam/marketing/en_us/documents/quick-reference-guides/trbc-business-classification-quick-guide.pdf.

For more details on Thomson's TRBC classification, please refer to Thomson's website (https://www.refinitiv.com/en/financial-data/indices/trbc-business-classification).
The sectors selected for this study belonged to three different levels of classification by Thomson: Business (2), Industry Group (3), Industry (4). Sectors were selected according to their impact on the biodiversity. Table 3 shows the list of the sectors selected for the study.

5.1.3 Types of finance

This section describes the types of finance included in the research. Financial institutions can invest in companies through a number of modalities. Financial institutions can provide credit to a company. This includes providing loans and the underwriting of share and bond issuances. Financial institutions can also invest in the equity and debt of a company by holding shares and bonds. This section outlines the different types of financing, how they were researched, and the implications for the study.

5.1.3.1 Corporate loans

The easiest way to obtain debt is to borrow money. In most cases, money is borrowed from commercial banks. Loans can be either short-term or long-term in nature. Short-term loans (including trade credits, current accounts, and leasing agreements) have a maturity of less than a year. They are mostly used as working capital for day-to-day operations. Short-term debts are often provided by a single commercial bank, which does not ask for substantial guarantees from the company.

A long-term loan has a maturity of at least one year, but generally of three to ten years.

Table 3: Scope of sectors[228]

LEVEL OF TRBC CLASSIFICATION	TRBC ID CODE	SECTOR
Business Sector	5010	Energy - Fossil Fuels
Business Sector	5230	Industrial Conglomerates
Business Sector	5710	Technology Equipment
Business Sector	5910	Utilities
Industry Group	512010	Metals & Mining
Industry Group	512020	Construction Materials
Industry Group	513020	Non paper packaging
Industry Group	521010	Aerospace & Defense
Industry Group	521020	Machinery, Equipment & Components
Industry Group	522010	Construction & Engineering
Industry Group	524050	Freight & Logistics services
Industry Group	532020	Textiles & Apparel
Industry Group	532040	Household Goods
Industry Group	534030	Other Specialty Retailers
Industry	50201020	Renewable Fuels
Industry	51101010	Commodity Chemicals
Industry	51101020	Agricultural Chemicals
Industry	51101030	Specialty Chemicals
Industry	51101090	Diversified Chemicals
Industry	51301010	Forest & Wood Products
Industry	51301020	Paper Products
Industry	51302020	Paper Packaging
Industry	52406010	Airlines
Industry	53101010	Auto & Truck Manufacturers
Industry	53101020	Auto, Truck & Motorcycle Parts
Industry	53101030	Tires & Rubber Products
Industry	53203010	Homebuilding
Industry	53301010	Hotels, Motels & Cruise Lines
Industry	53301020	Restaurants & Bars
Industry	54102010	Fishing & Farming
Industry	54102020	Food Processing
Industry	54102030	Tobacco
Industry	54201010	Household Products
Industry	54201020	Personal Products
Industry	54301020	Food Retail & Distribution

Long-term corporate loans are in particular useful to finance expansion plans, which only generate rewards after some period of time. The proceeds of corporate loans can be used for all activities of the company. Often long-term loans are extended by a loan syndicate, which is a group of banks brought together by one or more arranging banks. The loan syndicate will only undersign the loan agreement if the company can provide certain guarantees that interest and repayments on the loan will be fulfilled.

Project finance

One specific form of corporate loan is project finance. This is a loan that is earmarked for a specific project.

General corporate purposes / working capital

Often a company will receive a loan for general corporate purposes or for working capital. On occasion while the use of proceeds is reported as general corporate purposes, it is in fact earmarked for a certain project. This is difficult to ascertain.

5.1.3.2 Share issuances

Issuing shares on the stock exchange gives a company the opportunity to increase its equity by attracting a large number of new shareholders or increasing the equity from its existing shareholders.

When a company offers its shares on the stock exchange for first time, this is called an Initial Public Offering (IPO). When a company's shares are already traded on the stock exchange, this is called a secondary offering of additional shares. To arrange an IPO or a secondary offering, a company needs the assistance of one or more (investment) banks, which will promote the shares and find shareholders. The role of investment banks in this process therefore is very important.

The role of the investment bank is temporary. The investment bank purchases the shares initially and then promotes the shares and finds shareholders. When all issued shares that the financial institution has underwritten are sold, they are no longer included in the balance sheet or the portfolio of the financial institution. However, the assistance provided by financial institutions to companies in share issuances is crucial. They provide the company with access to capital markets and provide a guarantee that shares will be bought at a pre-determined minimum price.

5.1.3.3 Bond issuances

Issuing bonds can best be described as cutting a large loan into small pieces and selling each piece separately. Bonds are issued on a large scale by governments, but also by corporations. Like shares, bonds are traded on the stock exchange. To issue bonds, a company needs the assistance of one or more (investment) banks which underwrite a certain amount of the bonds. Underwriting is in effect buying with the intention of selling to investors. Still, in case the investment bank fails to sell all bonds it has underwritten, it will end up owning the bonds.

5.1.4 Financial institution financing contributions

During the financial data collection process, this research utilised a financial database (Refinitiv, formerly known as Thomson EIKON). Corporate loans, credit and underwriting facilities provided to the selected companies were researched for the period January 2019 -December 2019.

Financial databases often record loans and issuance underwriting when these are provided by a syndicate of financial institutions. The level of detail per deal often varies. Some sources may omit the maturity date or term of the loan, the use of proceeds, or even the exact issue date. Financial databases often do not report on the proportions of a given deal that can be attributed to the participants. In such instances, this research calculated an estimated contribution based on the rules of thumb described below.

Individual bank contributions to syndicated loans and underwriting (bond and share issuance underwriting) were recorded to the largest extent possible where these details where included in the financial database, or company or media publications.

In many cases, the total value of a loan or issuance is known, as are the banks that participate in this loan or issuance. However, often the amount that each individual bank commits to the loan or issuance has to be estimated.
In the first instance, this research attempted to calculate each individual bank's commitment on the basis of the fee they received as a proportion of the total fees received by all financial institutions. This proportion (e.g. Bank A received 10 per cent of all fees) was then applied to the known total deal value (e.g. 10 per cent x US$ 10 million = US$ 1 million for Bank A).

Where deal fee data was missing or incomplete, this research used the bookratio. The bookratio (see formula below) is used to determine the spread over bookrunners and other managers.

Bookratio:

$$\frac{\text{Number of participants - number of bookrunners}}{\text{Number of bookrunners}}$$

Table 4 shows the commitment assigned to bookrunner groups with our estimation method. When the number of total participants in relation to the number of bookrunners increases, the share that is attributed to bookrunners decreases. This prevents very large differences in amounts attributed to bookrunners and other participants.

Table 4: Commitment to assigned bookrunner groups

BOOKRATIO	LOANS	ISSUANCES
> 1/3	75 per cent	75 per cent
> 2/3	60 per cent	75 per cent
> 1.5	40 per cent	75 per cent
> 3.0	< 40 per cent*	< 75 per cent*

** In case of deals with a bookratio of more than 3.0, we use a formula which gradually lowers the commitment assigned to the bookrunners as the bookratio increases.*
The formula used for this:

$$\frac{1}{\sqrt{\text{Bookratio}}}$$
$$1.443375673$$

The number in the denominator is used to let the formula start at 40 per cent in case of a bookratio of 3.0. As the bookratio increases the formula will go down from 40 per cent. In case of issuances the number in the denominator is 0.769800358.

5.1.5 Timeframe

Corporate loans, bond and share issuances are considered credit activities. The scope of this research for credit activities is January 2019 to December 2019.

5.1.6 Data sources

For the collection of financial data, this research relied on the financial database Refinitiv (formerly Thomson Reuters Eikon).

5.2 Linking Finance to Biodiversity Risks

Each Thomson Reuters Business Classification (TRBC) code was classified as having either direct or indirect impacts on biodiversity. Direct impacts are those where industry activities are likely to immediately impact biodiversity from its business activities. Industries classified as having indirect impacts usually enable industries with direct impacts often through demand and supply in their value chains. For instance, the TRBC code for diversified mining, was classified as having direct impacts while the electronic equipment that often contains gold, has been classified as having indirect impacts on biodiversity. Supply chain generated indirect impacts are significant drivers of biodiversity impacts and this is increasingly recognised by downstream supply chain actors. As a result, a number of retailers, processors and traders have policies to limit the biodiversity impacts of their supply chains and provide information about whom they are sourcing from. For example, most large manufacturers of fast-moving consumer goods companies that use palm oil have committed to not purchase supply linked to deforestation, and to publish detailed lists from which palm oil mills they source from. Palm oil traders and some retailers have adopted similar policies. Banks can significantly reduce their biodiversity impacts by only providing loans to companies whose supply chain are free of such impacts.

In order to link bank loans to companies operating in various industries, the largest biodiversity-impacting activities identified by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) were matched with the TRBC codes. To do this IPBES sectors were adjusted slightly in order to provide a better fit to the TRBC codes. The following biodiversity impact sectors were included:

- Food system and agricultural commodities
- Forestry and non-food forest commodities
- Metal and mineral mining
- Fossil fuels
- Infrastructure
- Tourism
- Relocation of goods and people

It should be noted that many of the TRBC codes can be linked to multiple impact segments. In such instances, the value of loans was split equally between the associated biodiversity impact sectors in order to keep the total value of loans the same.

Table 5: Links between business sectors and biodiversity impacts

TRBC INDUSTRIES	IMPACT PATH	FOOD PRODUCTION & AGRICULTURAL COMMODITIES	FORESTRY & NON-FOOD FOREST COMMODITIES	METALS & MINERAL MINING	FOSSIL FUELS	INFRASTRUCTURE	TOURISM	RELOCATION OF GOODS AND PEOPLE
Aerospace & Defense	**Indirect**			X		X		
Agricultural Chemicals	**Direct**	X			X			
Airlines	**Direct**						X	X
Aluminum	**Direct**			X				
Apparel & Accessories	**Indirect**	X						
Apparel & Accessories Retailers	**Indirect**	X						X
Appliances, Tools & Housewares	**Indirect**			X				
Auto & Truck Manufacturers	**Indirect**			X				
Auto Vehicles, Parts & Service Retailers	**Indirect**			X				X
Auto, Truck & Motorcycle Parts	**Indirect**			X				
Coal	**Direct**				X			
Commodity Chemicals	**Direct**			X	X			
Communications & Networking	**Indirect**					X		
Computer & Electronics Retailers	**Indirect**			X				X
Computer Hardware	**Indirect**			X				
Construction & Engineering	**Direct**			X		X		
Construction Materials	**Indirect**			X		X		
Courier, Postal, Air Freight & Land-based Logistics	**Direct**							X
Diversified Chemicals	**Direct**			X	X			
Diversified Mining	**Direct**			X				
Electric Utilities	**Direct**					X		
Electrical Components & Equipment	**Indirect**			X				
Electronic Equipment & Parts	**Indirect**			X				
Fishing & Farming	**Direct**	X						
Food Processing	**Indirect**	X						
Food Retail & Distribution	**Indirect**	X						X
Footwear	**Indirect**	X	X					
Forest & Wood Products	**Direct**		X			X		
Gold	**Direct**			X				
Ground Freight & Logistics	**Direct**							X
Heavy Electrical Equipment	**Indirect**			X				
Heavy Machinery & Vehicles	**Indirect**			X				
Home Furnishings	**Direct**		X					
Home Furnishings Retailers	**Indirect**		X					X
Home Improvement Products & Services Retailers	**Indirect**		X					X

Homebuilding	**Direct**		X	X		X		
Hotels, Motels & Cruise Lines	**Direct**						X	
Household Electronics	**Indirect**			X				
Household Products	**Indirect**	X		X				
Independent Power Producers	**Direct**					X		
Industrial Conglomerates	**Direct**					X		
Industrial Machinery & Equipment	**Indirect**			X				
Integrated Oil & Gas	**Direct**				X	X		
Iron & Steel	**Direct**			X				
Marine Freight & Logistics	**Direct**							X
Mining Support Services & Equipment	**Indirect**			X				
Miscellaneous Specialty Retailers	**Indirect**							X
Multiline Utilities	**Direct**					X		
Natural Gas Utilities	**Indirect**				X	X		
Non-Gold Precious Metals & Minerals	**Direct**			X				
Non-Paper Containers & Packaging	**Indirect**				X			
Office Equipment	**Indirect**			X				
Oil & Gas Drilling	**Direct**				X			
Oil & Gas Exploration and Production	**Direct**				X	X		
Oil & Gas Refining and Marketing	**Direct**				X	X		
Oil & Gas Transportation Services	**Direct**				X	X		X
Oil Related Services and Equipment	**Indirect**				X			
Paper Packaging	**Indirect**		X					
Paper Products	**Indirect**		X					
Personal Products	**Indirect**	X						
Phones & Handheld Devices	**Indirect**			X				
Renewable Fuels	**Direct**	X	X					
Restaurants & Bars	**Indirect**	X					X	
Semiconductor Equipment & Testing	**Indirect**			X				
Semiconductors	**Indirect**			X				
Shipbuilding	**Indirect**			X				X
Specialty Chemicals	**Direct**	X		X	X			
Specialty Mining & Metals	**Direct**			X				
Textiles & Leather Goods	**Indirect**	X	X					
Tires & Rubber Products	**Direct**		X					
Tobacco	**Direct**	X						
Water & Related Utilities	**Direct**					X		

5.3 Policy Assessment Methodology

The assessment of bank policies is split into two sections of indicators. The first section assesses key indicators related to bank policies and commitments which are relevant to protecting biodiversity. The second section grades banks according to the degree they exclude the financing of companies engaged in activities with high biodiversity impacts across the key human drivers of biodiversity loss.

Each indicator was assigned a maximum number of points. Banks were graded as having high, medium, low, or no compliance with the indicators. Points were then calculated dependent on the grade assigned:

High: maximum points
Medium: half of maximum points
Low: a third of maximum points
No: zero points

In total 46 points were available in the policy and commitments section, and 54 points in the exclusion section.

Note that some indicators were only graded high or no; or high, medium and no.

NO	CATEGORY/SECTOR	MAX PTS	HIGH	MEDIUM	LOW
			OVERALL BIODIVERSITY COMMITMENTS AND POLICIES		
1.1	Sustainability governance	3	The bank's board or a similar high-level executive committee or individual has overall responsibility for sustainability.	n/a	n/a
1.2	Veto of high biodiversity impact finance and loans	4	The sustainability director (or a similar position) has the right to veto all loans and investments above a set threshold on the grounds of their predicted biodiversity impacts.	n/a	Veto right is limited to specific areas such as green finance vehicles onlyw
1.3	Remuneration packages	4	The renumeration packages of executives are linked to biodiversity outcomes of loans and investments.	The renumeration takes into account outcomes of loans and investments for specific sectors with high biodiversity impacts (such as fisheries, agriculture, forestry, mining of fossil fuels)	The renumeration is linked to operational environmental indicators only (such as emissions) or the company does not provide clear information how biodiversity related issues are integrated in renumeration packages.
1.4	Commitment to Equator principles	3	The bank has adopted the Equator Principles and has reported on its progress within the last two years	n/a	n/a
1.5	Support for Aichi Biodiversity Targets	4	The bank requires creditors and investees to commit to biodiversity policies in line with Aichi Biodiversity Targets.	The bank publicly supports the Aichi Biodiversity Targets.	n/a
1.6	Reporting on biodiversity impact risks	4	The bank discloses biodiversity-related risks or risks of major biodiversity impacting sectors including at least fisheries, agriculture, forestry, and mining and fossil fuels. Risk reporting includes the disclosure of at least the value of loans at risk of having significant biodiversity impacts, and the number and percentage of loans that underwent (enhanced) due diligence for potential biodiversity issues as well as the number and percentage of loans declined due to such issues.	The bank commits to disclose detailed biodiversity-related risks for their business in the future.	n/a
1.7	Biodiversity policy	4	The bank has an overall biodiversity policy that includes timelines and measurable milestones to reduce biodiversity impacts of lending and financing activities.	The bank has developed and published a biodiversity-specific policy with clear goals to reduce biodiversity impacts of its lending and financing activities, but no timelines and measurable milestones.	The bank's public documents mention the need to protect/conserve biodiversity generally (not just in context of specific environmental issues) or has policies for at least fisheries, agriculture, forestry, mining, and fossil fuels
1.8	Biodiversity impact due diligence process	4	The bank has a transparent and public due diligence procedure in place that covers all corporate loans and investments and relates to biodiversity impacts across all lending activities and industry sectors. Alternatively, there is a detailed and transparent due diligence system in place for sectors including at least fisheries, agriculture, forestry and mining, and fossil fuels, and the bank has been graded at least "medium" for its exclusion activities in each of these sectors.	There is a commitment to develop a transparent and public due diligence procedure that covers all corporate loans and investments and relates to biodiversity impacts across all lending activities and industry sectors. Alternatively, there is a commitment for sectors including at least fisheries, agriculture, forestry and mining, and fossil fuels, and the bank has been graded at least "medium" for its exclusion activities in each of these sectors.	n/a
1.9	Biodiversity impact measuring	4	The bank reports on and measures the impacts of its services on biodiversity to creditors and investees, using a transparent methodology. Alternatively, the bank has such a system for at least the fisheries, agriculture, forestry and mining, and fossil fuel sectors.	There is evidence the bank is in the process of developing a biodiversity impact measurement system methodology or is applying an existing methodology across all investment areas. Alternatively, the bank is in the process of developing such a system for at least the fisheries, agriculture, forestry and mining, and fossil fuel sectors.	There is commitment to develop a biodiversity impact measurement methodology in the future, or to using an existing one, at least for ESG specialist funds.
1.10	Biodiversity stress testing	4	Mandatory stress-testing of bank balance sheets for biodiversity impacts is publicly supported.	n/a	n/a
1.11	Environmental liability insurance	4	The bank has publicly stated that finance institutions should be required to have mandatory environmental liability insurance.	n/a	n/a
1.12	Citizen/Savers' rights	4	The bank has an operational consultation process allowing savers/customers to have a say in what projects and industries the bank invests in that relate to biodiversity issues.	The bank has committed to develop a consultation process for savers/customers to have a say what projects and industries the bank invests in that will relate to biodiversity issues.	The bank publicly states that savers have a right to know and should be consulted on what their money is invested in, including for areas with biodiversity issues.
0	Subtotal	46			

OVERALL BIODIVERSITY COMMITMENTS AND POLICIES					
2.1	Fisheries and Aquaculture	8	Excludes five or more activities	Excludes three or four activities	Excludes 2 activities
2.2	Agriculture	8	Excludes five or more activities	Excludes three or four activities	Excludes two activity or limits exclusion activities to specific agricultural commodities (such as palm, soy, or leather)
2.3	Forestry and bioenergy	7	Excludes five or more activities	Excludes three or four activities	Excludes two activities or limits exclusion activities to specific commodities
2.4	Mining (excluding fossil fuels)	7	Excludes five or more activities	Excludes three or four activities	Excludes two activities
2.5	Fossil Fuels	7	Excludes five or more activities	Excludes three or four activities	Excludes two activities
2.6	Infrastructure	7	Excludes five or more activities	Excludes three or four activities	Excludes two activities
2.7	Tourism	5	Excludes five or more activities	Excludes three or four activities	Excludes two activities
2.8	Logistics and Transport	5	Excludes five or more activities	Excludes three or four activities	Excludes two activities
	Subtotal	54			
	TOTAL points available	100			

Table 6: Policy assessment indicators

Notes:

To achieve points for excluding activities in internationally-recognised biodiversity risk areas, banks will have to exclude funding for projects impacting at least two of the following: UNESCO World Heritage sites, RAMSAR sites, IUCN category I-IV protected areas, or areas identified by the Alliance for zero extinction.

To achieve full points in the fisheries section, banks must have at least two exclusions that fundamentally address destructive fishing practices such as bottom trawling or the global overfishing of stocks.

In the fossil fuel section, companies can only claim points for excusing coal if both new coal mining and new coal powerplants are excluded from funding. The Exclusion for Mountain Top Removal (MTR) does not warrant points on its own.

In the Agriculture sector, banks cannot reach full points if all exclusion activities are related to one or two commodities only, such as palm oil or soy.

Table 7: Full grades and scores for all banks

		POLICY INDICATORS													EXCLUSION INDICATORS									
		1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.1	1.11	1.12	Policy Total	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	Exclusion Total	Grand Total
BANCO BILBAO VIZCAYA ARGENTARIA	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		MED	HIGH	NO	HIGH	HIGH	LOW	NO	LOW		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	4.00	8.00	0.00	7.00	7.00	2.33	0.00	1.67	30.00	37.33
BNP PARIBAS	Grade	HIGH	NO	LOW	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		LOW	HIGH	HIGH	MED	HIGH	NO	NO	NO		
	Score	3.00	0.00	1.33	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	8.67	2.67	8.00	7.00	3.50	7.00	0.00	0.00	0.00	28.17	36.83
ING GROUP	Grade	HIGH	NO	LOW	HIGH	NO	NO	LOW	MED	NO	NO	NO	NO		MED	HIGH	MED	LOW	MED	LOW	NO	NO		
	Score	3.00	0.00	1.33	3.00	0.00	0.00	1.33	2.00	0.00	0.00	0.00	0.00	10.67	4.00	8.00	3.50	2.33	3.50	2.33	0.00	0.00	23.67	34.33
UBS	Grade	HIGH	NO	LOW	NO	NO	NO	LOW	NO	NO	NO	NO	NO		LOW	HIGH	LOW	LOW	HIGH	LOW	LOW	LOW		
	Score	3.00	0.00	1.33	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	5.67	2.67	8.00	2.33	2.33	7.00	2.33	1.67	1.67	28.00	33.67
LLOYDS BANKING GROUP	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	MED	NO	NO	NO	NO		MED	MED	LOW	MED	HIGH	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	2.00	0.00	0.00	0.00	0.00	9.33	4.00	4.00	2.33	3.50	7.00	0.00	0.00	0.00	20.83	30.17
CRÉDIT AGRICOLE	Grade	HIGH	NO	LOW	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	MED	MED	LOW	HIGH	NO	NO	LOW		
	Score	3.00	0.00	1.33	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	8.67	0.00	4.00	3.50	2.33	7.00	0.00	0.00	1.67	18.50	27.17
NATWEST	Grade	HIGH	NO	NO	HIGH	NO	NO	NO	MED	NO	NO	NO	NO		MED	MED	MED	NO	HIGH	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	8.00	4.00	4.00	3.50	0.00	7.00	0.00	0.00	0.00	18.50	26.50
HSBC	Grade	HIGH	LOW	LOW	High	NO	NO	Low	NO	NO	NO	NO	NO		NO	HIGH	MED	LOW	LOW	NO	NO	NO		
	Score	3.00	1.33	1.33	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	10.00	0.00	8.00	3.50	2.33	2.33	0.00	0.00	0.00	16.17	26.17
CREDIT SUISSE	Grade	HIGH	NO	LOW	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	MED	MED	MED	MED	LOW	NO	NO		
	Score	3.00	0.00	1.33	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	8.67	0.00	4.00	3.50	3.50	3.50	2.33	0.00	0.00	16.83	25.50
GOLDMAN SACHS	Grade	HIGH	NO	LOW	NO	NO	NO	LOW	NO	NO	NO	NO	NO		LOW	LOW	LOW	LOW	MED	LOW	LOW	LOW		
	Score	3.00	0.00	1.33	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	5.67	2.67	2.67	2.33	2.33	3.50	2.33	1.67	1.67	19.17	24.83
RABOBANK	Grade	HIGH	NO	NO	HIGH	NO	NO	MED	MED	NO	NO	NO	NO		MED	LOW	NO	NO	HIGH	no	no	no		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	10.00	4.00	2.67	0.00	0.00	7.00	0.00	0.00	0.00	13.67	23.67
BARCLAYS	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	HIGH	MED	NO	MED	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	8.00	3.50	0.00	3.50	0.00	0.00	0.00	15.00	22.33
SOCIÉTÉ GÉNÉRALE	Grade	HIGH	NO	LOW	HIGH	NO	NO	LOW	MED	LOW	NO	NO	NO		NO	MED	LOW	NO	MED	NO	NO	NO		
	Score	3.00	0.00	1.33	3.00	0.00	0.00	1.33	2.00	1.33	0.00	0.00	0.00	12.00	0.00	4.00	2.33	0.00	3.50	0.00	0.00	0.00	9.83	21.83
UNICREDIT	Grade	HIGH	NO	LOW	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	MED	NO	HIGH	LOW	NO	NO		
	Score	3.00	0.00	1.33	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	8.67	0.00	0.00	3.50	0.00	7.00	2.33	0.00	0.00	12.83	21.50
BPCE GROUP	Grade	HIGH	NO	NO	HIGH	NO	MED	MED	MED	MED	NO	NO	NO		NO	NO	NO	NO	HIGH	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	14.00	0.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00	7.00	21.00

		POLICY INDICATORS													EXCLUSION INDICATORS									
		1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.1	1.11	1.12	Policy Total	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	Exclusion Total	Grand Total
DBS BANK	Grade	HIGH	NO	LOW	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		no	HIGH	NO	NO	MED	NO	NO	NO		
	Score	3.00	0.00	1.33	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	8.67	0.00	8.00	0.00	0.00	3.50	0.00	0.00	0.00	11.50	20.17
SANTANDER	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	LOW	MED	LOW	MED	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	2.67	3.50	2.33	3.50	0.00	0.00	0.00	12.00	19.33
FIRSTRAND	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		LOW	NO	NO	NO	HIGH	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	2.67	0.00	0.00	0.00	7.00	0.00	0.00	0.00	9.67	17.00
BANK OF AMERICA	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	LOW	LOW	LOW	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	2.67	2.33	2.33	0.00	0.00	0.00	0.00	7.33	14.67
OCBC BANK	Grade	HIGH	NO	NO	NO	NO	NO	LOW	MED	NO	NO	NO	NO		NO	LOW	LOW	NO	LOW	NO	NO	NO		
	Score	3.00	0.00	0.00	0.00	0.00	0.00	1.33	2.00	0.00	0.00	0.00	0.00	6.33	0.00	2.67	2.33	0.00	2.33	0.00	0.00	0.00	7.33	13.67
DEUTSCHE BANK	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	LOW	NO	NO	MED	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	2.67	0.00	0.00	3.50	0.00	0.00	0.00	6.17	13.50
TORONTO-DOMINION BANK	Grade	HIGH	NO	LOW	HIGH	NO	NO	LOW	MED	NO	NO	NO	NO		NO	NO	NO	NO	LOW	NO	NO	NO		
	Score	3.00	0.00	1.33	3.00	0.00	0.00	1.33	2.00	0.00	0.00	0.00	0.00	10.67	0.00	0.00	0.00	0.00	2.33	0.00	0.00	0.00	2.33	13.00
NATIONAL AUSTRALIA BANK	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	MED	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	3.50	0.00	0.00	0.00	3.50	10.83
COMMONWEALTH BANK OF AUSTRALIA	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	MED	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	3.50	0.00	0.00	0.00	3.50	10.83
SMBC GROUP	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	LOW	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	2.33	0.00	0.00	0.00	2.33	9.67
CITIGROUP	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	LOW	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	2.33	0.00	0.00	0.00	2.33	9.67
JPMORGAN CHASE	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	LOW	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	2.33	0.00	0.00	0.00	2.33	9.67
CREDIT MUTUEL	Grade	HIGH	NO	NO	NO	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	LOW	LOW	NO	NO	NO		
	Score	3.00	0.00	0.00	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	4.33	0.00	0.00	0.00	2.33	2.33	0.00	0.00	0.00	4.67	9.00
BANCO DO BRASIL	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	LOW	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	1.33	0.00	0.00	0.00	0.00	8.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.67
INTESA SANPAOLO	Grade	HIGH	NO	NO	HIGH	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	LOW	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	2.33	0.00	0.00	0.00	2.33	8.33

		POLICY INDICATORS													EXCLUSION INDICATORS									
		1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.1	1.11	1.12	Policy Total	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	Exclusion Total	Grand Total
MORGAN STANLEY	Grade	HIGH	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	LOW	NO	NO	LOW	NO	NO	NO		
	Score	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	2.67	0.00	0.00	2.33	0.00	0.00	0.00	5.00	8.00
STANDARD BANK	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
CIMB GROUP	Grade	HIGH	NO	NO	HIGH	NO	LOW	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
BRADESCO	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
ROYAL BANK OF CANADA	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
MIZUHO FINANCIAL	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
NORINCHUKIN BANK	Grade	HIGH	NO	NO	High	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
MITSUBISHI UFJ FINANCIAL	Grade	HIGH	NO	NO	HIGH	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	7.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.33
DZ BANK	Grade	HIGH	NO	NO	HIGH	NO	NO	NO	NO	NO	NO	NO	no		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00
WELLS FARGO	Grade	HIGH	NO	NO	HIGH	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00
CHINA CONSTRUC-TION BANK	Grade	HIGH	LOW	NO	NO	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	1.33	0.00	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	5.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.67
SHINHAN FINANCIAL GROUP	Grade	HIGH	NO	NO	NO	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33
BANK MANDIRI	Grade	HIGH	NO	NO	NO	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33
MALAYAN BANKING	Grade	HIGH	NO	NO	NO	NO	LOW	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	0.00	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33

		POLICY INDICATORS													EXCLUSION INDICATORS									
		1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.1	1.11	1.12	Policy Total	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	Exclusion Total	Grand Total
STATE BANK OF INDIA	Grade	HIGH	NO	NO	NO	NO	NO	LOW	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33
BANK OF CHINA	Grade	HIGH	LOW	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33
AGRICULTURAL BANK OF CHINA	Grade	HIGH	LOW	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33
INDUSTRIAL AND COMMERCIAL BANK OF CHINA	Grade	HIGH	LOW	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.33
HDFC	Grade	HIGH	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00
SBERBANK	Grade	HIGH	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO		NO	NO	NO	NO	NO	NO	NO	NO		
	Score	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00

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portfolio.earth

info@portfolio.earth

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