Prepared by

Climate Bonds INITIATIVE

May 2021

Taxonomy Roadmap for Chile

One more step towards consolidating the local Green Finance Agenda

In association with the Inter-American Development Bank (IDB), The Ministry of Finance and the Green Finance Public-Private Roundtable (La Mesa)

IDB Inter-American Development Bank

Ministerio de Hacienda Gobierno de Chile

Mesa Público–Privada de Finanzas Verdes

With the support of the International Climate Initiative (IKI)

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

based on a decision of the German Bundestag

INTERNATIONAL CLIMATE INITIATIVE (IKI)

Acknowledgement

The Taxonomy Roadmap for Chile for Chile was a joint effort prepared by the Climate Bonds Initiative (CBI) in association with the Ministry of Finance of Chile, the Inter-American Development Bank and the Green Finance Public-Private Roundtable (*La Mesa*), with the support of the Germany's International Climate Initiative (IKI). It was directed by Carolina Barreto (CBI) and Trinidad Lecaros (Ministry of Finance).

The authors and collaborators of the Action Plan were: Vishwas Vidyaranya (CBI), Sean Kidney (CBI), Thatyanne Gasparotto (CBI), Valeria Dagnino Contreras (CBI), Bridget Boulle (CBI), Stephanie Moore (Ministry of Finance) and Alfonso Enrique Galarce Jaramillo (Ministry of the Environment). It also featured kind reviews from Giovanni Leo Frisari, Cristian Andrés Salas Parra, and José Francisco Demichelis from the Inter-American Development Bank.

This effort was made possible thanks to the cooperation of the Ministry of the Environment, the Ministry of Housing and Urban Planning, the Ministry of Energy, the Energy Sustainability Agency, the Commission for the Financial Market (CMF), the Superintendency of Pensions and the Central Bank of Chile.

Likewise, inputs were received from member institutions of La Mesa to whom we thank for their time, knowledge and effort in promoting green finance in Chile.

Contents

List of Figures

List of Tables

About the Project

The green finance agenda is a priority for the Government of Chile. One of the milestones of this agenda was the creation of a "Green Finance Public-Private Roundtable" (*La Mesa*), led by the Ministry of Finance and composed of financial regulators, the local financial industry, and the Government. *La Mesa*'s main objective was to define a space for cooperation in the promotion of green finance and climate risk management. The main milestones achieved during 2019 were the adoption of the Green Agreement (Acuerdo Verde), the issuance of a Statement by the Financial Authorities regarding Climate Change and Financial Stability and a Survey Report on climate risks and opportunities in financial sector decision-making. Progress made since *La Mesa* was established can be attributed to the continued support of the members: *Ministerio de Hacienda (MH), Comisión para el Mercado Financiero (CMF), Banco Central de Chile (BCCh), Superintendencia de Pensiones (SP), Banco del Estado de Chile (BE), Ministerio del Medio Ambiente (MMA), Bolsa de Santiago (BS), Bolsa Electrónica de Chile (BEC), Asociación de Administración de Fondos de Pensiones (AAFP), Asociación de Bancos e Instituciones Financieras (ABIF), Asociación de Aseguradores de Chile (AACH), Asociación Chilena Administración de Fondos de Inversión (ACAFI) y Asociación Administradora de Fondos Mutuos (AAFM),* Inter-American Development Bank (IADB), Iniciativa Financiera del Programa de las Naciones Unidas (UNEP FI), the UK Embassy in Chile and, most recently, the World Bank Group. The members are committed to contributing their knowledge and resources to the non-compulsory implementation of the Green Agreement's implementation agenda as part of the Government's goal for achieving carbon neutrality by 2050.

La Mesa established a 2020+ Roadmap which is the work plan executed by its members from 2020 onwards and is coordinated by the Ministry of Finance. The objective is to implement the commitments of the Green Agreement by improving the management of climate risks and opportunities in the financial sector, promoting international cooperation, and increasing capacity building. To comply with the above, *La Mesa* has divided its activities into two Working Groups (WGs). Within Working Group 1 (WG1), which includes the financial authorities, several actions are planned such as the development of a **Taxonomy Roadmap for Chile** which will serve as a guide for the Chilean Government with regards to the future development of a Chilean sustainable/green taxonomy.

The Ministry of Finance requested the IADB and CBI for support in the development of a **Taxonomy Roadmap for Chile**, the main **purpose** of which is to contribute to the promotion of green finance and WG1's objectives by first conducting **a preliminary**

assessment on what the best approach may be for potentially developing a taxonomy in Chile. The Taxonomy Roadmap for Chile explains the conceptual aspects involved in the development of a taxonomy, related international developments and their potential implications for Chile and the steps needed to develop a national taxonomy, which serves as a tool for further development of green finance. It also describes the methodology, objectives, and application of other international taxonomies such as the European Union (EU), CBI, China and other similar initiatives currently undertaken in Colombia and Canada, which may serve as references for the potential development of the Chilean Taxonomy. During the development of this report, the Climate Bonds team had meetings with various ministries and public entities[01] of Chile to review the national policies and plans and organized a workshop for government institutions and the financial sector as part of capacity building.

CBI was commissioned to develop the Taxonomy Roadmap for Chile with support of the Chilean financial authorities (WG1), and the IADB.

01 Ministry of Finance, Ministry of Energy, Ministry of Transport and Telecommunications, Ministry of Housing and Urban Development, the Financial Markets Commission (CMF) and the Chilean Energy Efficiency Agency

List of Abbreviations

AFOLU	Agriculture, Forestry and Land use
CBI	Climate Bonds Initiative
CMF	Comisión para el Mercado Financiero, Chile
CSRC	China Securities Regulatory Commission
DANE	National Administrative Department of Statistics, Colombia
DG CLIMA	Directorate-General for Climate Action, European Commission
DG ENV	Directorate-General for the Environment, European Commission
DG FISMA	Directorate-General for Financial Stability, Financial Services and Capital Markets Union, European Commission
DNP	National Planning Department, Colombia
DNSH	Do No Significant Harm
FDI	Foreign Direct Investments
GHG	Greenhouse Gas
HLEG	High-level Expert Group on Sustainable Finance, EU
ICMA	International Capital Market Association
IDB	Inter-American Development Bank
IFC	International Finance Corporation
ILO	International Labour Organisation
IPCC	Intergovernmental Panel on Climate Change
IPSF	International Panel on Sustainable Finance
MADS	Ministry of Environment and Sustainable Development, Colombia
NDC	Nationally Determined Contributions
NDRC	National Development and Reform Commission, China
NGFS	Network for Greening the Financial System
OECD	Organisation for Economic Cooperation and Development
PBOC	People's Bank of China
PRI	Principles for Responsible Investment
SDG	Sustainable Development Goal
SFC	Superintendencia Financiera de Colombia
SII	Servicio de Impuestos Internos, Chile
TCFD	The Task Force on Climate-related Financial Disclosures
TEG	Technical Expert Group
TWG	Technical Working Group
WMO	World Meteorological Organisation

Executive Summary

Global anthropogenic greenhouse gas (GHG) emissions continue to increase significantly despite international commitments to mitigate them. The current Nationally Determined Contribution (NDC) commitments by countries established as part of the Paris Agreement of 2015 are not sufficient to limit global warming to 1.5°C, and governments need to increase their ambitions to achieve this goal (WRI, 2020).

Chile has demonstrated excellent leadership through its international and national commitments against climate change. Chile's updated NDCs set a goal of carbon neutrality by 2050, and the country has implemented several national policies, plans and pieces of legislation to achieve this goal such as the climate change bill currently being discussed in Congress. Rising global temperatures also have adverse effects on the ecosystems and population of Chile. This has resulted in changes in precipitation patterns, droughts, and extreme weather events in different regions of the country which also impact all economic sectors (Ministerio del Medio Ambiente, 2014). **Climate uncertainties are linked to financial risks** and this has been acknowledged as the biggest global risk by the World Economic Forum (World Economic Forum, 2020) and the Network for Greening the Financial System (NGFS) of which the Financial Market Commission (CMF), Chile's financial regulator and the Central Bank of Chile are members.

In order to meet the climate commitments and adapt to the effects of climate change, there is a need to substantially mobilise investments to a net-zero and a resilient economy from various sources including public, private, and multilateral organizations, among others. **A sustainable classification system may facilitate the capital flows into sustainable activities and assets and act as guidance for climate-aligned investments**. Moreover, it supports the correct assessment of climate-related risks (i.e., physical and transition) for the financial sector. A national taxonomy can be used across sectors and is a multi-functional classification system that will serve as a blueprint for greening Chile's economy for financial and non-financial sectors.

This Taxonomy Roadmap for Chile covers the following:

- Outlines different pathways for the Chilean Government to consider in creating a national taxonomy.
- Provides an overview of existing taxonomies.
- Gives an insight into the opportunity for a potential national taxonomy and analyses its benefits and drawbacks.

- Highlights each of the key elements involved in the creation of a taxonomy.
- Provides recommendations for the Chilean Government for developing a taxonomy.

The report also describes various applications and users of the taxonomy, as well as opportunities and challenges for sustainable finance.

A national taxonomy that is aligned with international taxonomies should be a core objective of the taxonomy development process for Chile. Establishing clear green definitions could give Chile an advantage compared to other countries in the region to increase capital flows for sustainable projects. Definitions that are harmonised with international taxonomies could facilitate the flow of international green capital into Chile. This is important, mainly due to the key trade and investment relationships with international partners such as the EU and China, where green investments are in demand and taxonomies are being developed. National taxonomies will level the differences and remove roadblocks to preferential funding from local and international markets. A national taxonomy can also be used as a tool to identify and label climate-aligned activities, assets and projects from the real sector in order to deliver a low carbon economy.

The recommended pathway for Chile is to: adopt, adapt, and lead. It is recommended that the pathway for Chile to potentially develop a national taxonomy is firstly to adopt international taxonomies where possible, secondly to adapt and modify existing taxonomies to the local circumstances and thirdly to take leadership globally in developing new criteria in areas that are underdeveloped. The reason for taking this approach is twofold: comparability and credibility. International investors and market players want to be able to easily compare between labelled financial products and to that effect, taxonomies that are seen to dialogue with other standards consequently also provide more credibility. Existing taxonomies that can be leveraged include the EU Taxonomy, China Green Bond Endorsed Projects Catalogue of 2020 or the Climate Bonds Taxonomy. At the same time, there is space for Chile to establish leadership in certain areas, including those that are not covered in the EU taxonomy such as mining, and nature-based solutions. The work should consider all national plans, policies, and other developments in the country and the criteria should be based on available scientific information. Other pathways for developing a taxonomy are described in **"3. Pathways for developing a National Taxonomy for Chile"**.

Climate change and other environmental indicators are recommended as the overarching objectives of a Chilean taxonomy. This is based on the evaluation of the NDCs and commitments of the entities under the Green Agreement as well as a stakeholder mapping that was car-

ried out in discussion with members of *La Mesa* to identify potential entities that could be part of the country's taxonomy development process.

Analysis indicates priority sectors to address mitigation are Energy, Transport, Construction, and Industry (mining). This is based on an analysis of the importance of each of these sectors to the Chilean economy, their emissions, and other factors. Regardless of the sector prioritisation, adaptation and mitigation-related activities should be developed in parallel as both are equally important components of combating climate change.

An initial gap assessment for the Construction, Energy, Transport, and Mining sectors was conducted based on discussions with experts from the ministries and evaluation of key policy documents that can guide the technical discussions during taxonomy development. The assessment resulted in the identification of key benchmarks and standards that could be potentially used for the selection of activities and the development of screening criteria. This assessment can act as a guide for analysis of other sectors during taxonomy development.

The **transition for the mining sector**, a crucial sector for Chile's economy, would likely be a priority for inclusion in the national taxonomy. However, this is a sector for which there is no international precedent available in existing taxonomies. It is an **opportunity for Chile to lead** the initiative to develop the eligibility criteria for activities together with groups such as the International Platform on Sustainable Finance (IPSF) and other initiatives around the world. The primary focus of this sector should be mining for strategically important minerals that are required for a low carbon transition (e.g., Lithium, copper, etc.). This should be achieved considering no significant harm to the environmental objectives.

Finally, in addition to mitigation, the taxonomy would also benefit from developing criteria towards adaptation and resilience, considering the **climate risks and adverse impacts on various sectors** in the country. Chile has identified these cross-sector risks and vulnerabilities in different national plans, such as the National Plan for Adaptation (Ministerio del Medio Ambiente, 2014), the National Policy for Disaster Risk Reduction 2020-2030 and sector resilience plans developed by various ministries. Resilience is about the sustainable management of societies. A resilience framework will be beneficial for Chile for a subsequent expansion of the taxonomy into social aspects that can be used, for example, in Social or Sustainable Development Goal (SDG) bonds. The taxonomy also provides an opportunity to increase capital flows for **adaptation and resilience** investments, which are equally crucial for the country.

Our analysis shows that **a taxonomy can be applied to a wide range of users and financial instruments**. However, it is recommended to focus initially on green debt

instruments and later expand to other financial instruments, products, and entities. The principal users of existing green taxonomies have been green bond issuers and investors, but they can also be used by other financial and non-financial entities and instruments.

The stakeholders involved in the development of the taxonomy can be mapped into three levels of governance. The following examples of institutions are based on discussions with public entities[02] and experience from other taxonomy developments:

- Tier-1: Taxonomy owners (e.g., Ministry of Finance, Ministry of Environment, National Office of Emergency of the Interior Ministry (ONEMI), Central Bank and financial regulators)
- Tier-2: Coordinators and advisors (e.g., COP25 Scientific Committee within the Ministry of Science and Innovation, IADB, and CBI)
- Tier-3: Technical and Industry experts (e.g., Ministry of Science and Innovation, Centro de Ciencia del Clima y la Resiliencia (CR)2, Centro UC, ACERA, ASIPLA, ACAFi, ABIF, AAFP, Bolsa de Santiago and CORFO)

In conclusion, Chile's national taxonomy will help to establish a green investment roadmap and act as a blueprint for the country's transition towards a green economy. If aligned with international taxonomies, it will help increase capital flows into green projects from international sources of capital. While this report assesses the existing taxonomies while proposing a way forward for Chile, the natural next step would be to decide which sectors will need to be adapted or developed in moving ahead with specific criterion and indicators and carry out thorough technical assessments accordingly.

02 Ministry of Finance, Ministry of Energy, Ministry of Housing and Urban Development and the CMF

1. Introduction: Taxonomy 101

The world needs to decarbonise rapidly

Global anthropogenic GHG emissions are increasing continuously and have caused significant global warming. Global temperatures have raised by about 1.1°C compared to the pre-industrial levels (WMO, 2019). CO_2 concentrations have surpassed 400 parts per million (ppm), and the combination of rising sea-levels, ocean acidification and extreme weather events globally have resulted in significant loss of habitat, increased displacement, mortality, and economic loss. Chile has identified its vulnerability to climate change and the need to adapt the capacity to manage the adverse effects caused by socio-natural disasters in the country and water security. Temperatures in northern Chile and in the Andes region are expected to increase between 1.5-2°C above the historical average and rainfall is expected to decrease, especially in the region between Atacama and Los Lagos, which will affect agricultural productivity in the next three decades (Government of Chile, 2020). Adaptation and mitigation should therefore be considered as complementary strategies to manage and reduce the risks of climate change through effective public policies. Substantial reductions in GHG emissions in the coming decades can minimize climate risks in the future and contribute to climate-resilient pathways for sustainable development.

Climate uncertainties are also related to financial risks and the Chilean financial authorities made a public declaration in this regard via the "Statement by the Financial Authorities regarding Climate Change and financial stability" (Min. Hacienda, CMF, Banco Central, SP, 2019). The Global Risks Report of 2020 published by the World Economic Forum has identified climate action failure as the number one risk by impact and number two risk by likelihood over the next decade (World Economic Forum, 2020). The NGFS also acknowledged the financial risks associated with climate change in their report on the *Overview of the Environmental Risk Analysis* (NGFS, 2020). The report specifically recommends the adoption of taxonomies including green and brown definitions to increase transparency of Environmental, Social, and Governance (ESG) risks and implications around economic activities.

Taxonomies can facilitate capital flows into sustainable investments

Substantial investments are required quickly from different sources including private, public, and multilateral organizations, especially in developing countries considering their higher exposure to climate risks. To mobilise the capital needed and guide the investments, it is important to have a classification system as a reference to provide clarity and

guidance on what is considered a green investment.

Taxonomies provide clarity and transparency to financial market participants and other stakeholders on priority investments across economic activities. Depending on the specific objectives (e.g., environment, climate, social), taxonomies help to align investments with global and national commitments, (e.g., to reduce GHG emissions) while enabling informed decision-making by investors and thus avoiding greenwashing.[03]

A taxonomy can also catalyse the flow of capital towards green projects. A government-endorsed taxonomy will also provide Chile with a regional competitive advantage by connecting itself with the sustainable finance frameworks of key trade and investment partners such as the European Union and China.

This Taxonomy Roadmap for Chile intends to provide guidance on different options for Chile such as adopting from an international taxonomy or developing a national taxonomy and mobilizing capital towards financing climate change solutions. The different pathways for the development of a taxonomy in Chile are described in **"3. Pathways for developing a National Taxonomy for Chile"**. This report also presents international taxonomy developments based on CBI's experience in developing the first global taxonomy and supporting other major taxonomies around the world. **This report does not intend to be a taxonomy draft**.

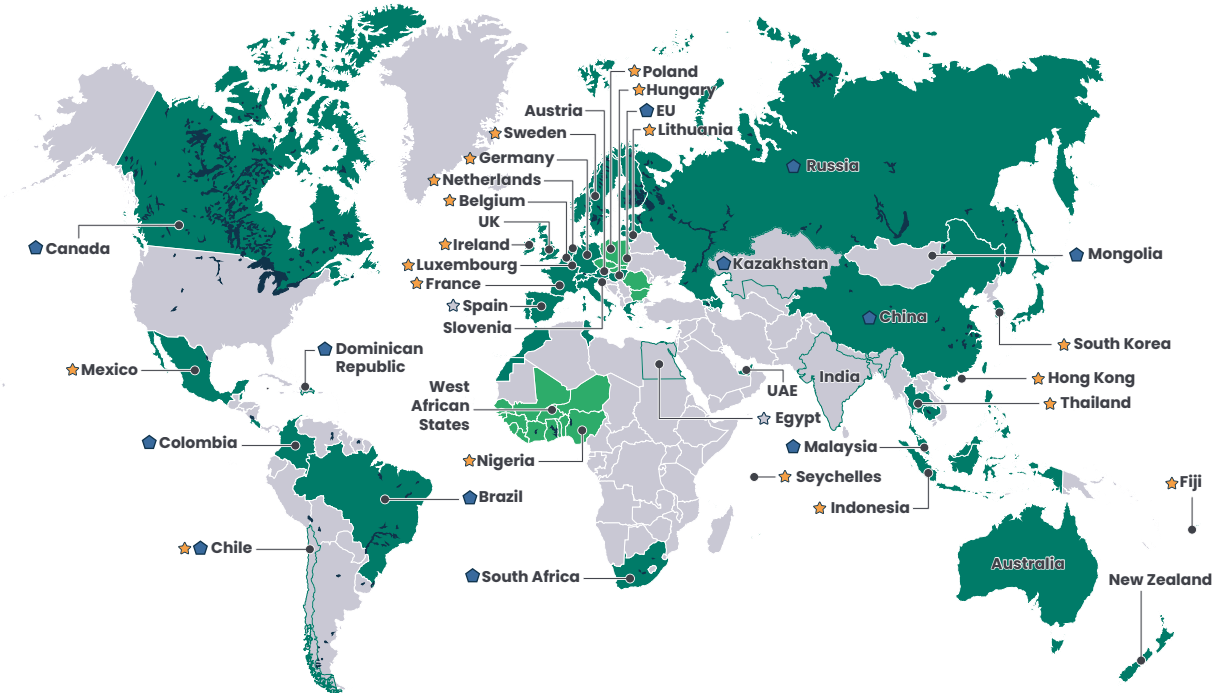
Taxonomies already available and in development

Climate Bonds Initiative released its first taxonomy in 2014 as a guide to aid the process of developing certification criteria for sectors and activities across the global economy. As the green bond market has grown, the concept of a taxonomy to avoid greenwashing in this market took off. The first country to adopt a green taxonomy was China. In 2015, the People's Bank of China published the first version of the Green Bond Endorsed Projects Catalogue (2015). For the purposes of this report and simplicity, the *Green Bond Endorsed Project Catalogue* (there is now a 2020 version) is referred to as the China Green Taxonomy.

The EU started its taxonomy development process in late 2016 and other taxonomies are now being developed all around the world. The scope of various international taxonomies is described in **"Annex 2: International practices"**.

03 The portrayal of activities and financing as environmentally friendly when in fact they are not.

Figure 1: Taxonomies, Sovereign green bonds and NGFS globally



Network for Greening the Financial System (NGFS) membership

Network for Greening the Financial System (NGFS) membership through economic communities

Sovereign Green / Susteinability Bond issues

Sovereign Green Bond planned

Taxonomy of sustainable activities developed /planned

NB: Chile, Ecuador and Guatemala have issued Sovereign Social bonds.

Source: Climate Bonds Initiative, 2020

2 . Why develop a national green taxonomy?

2.1 A taxonomy is a blueprint for a green economy

In the financial context, a sustainable/green taxonomy is a classification tool used to easily identify green assets, projects, and industrial activities under different sectors. A green taxonomy could contain various environmental objectives, including climate change adaptation and mitigation, pollution control, water resource conservation, biodiversity, and natural resource conservation.

Green taxonomies originated to allow market participants to clearly map, identify and evaluate green projects, assets, or activities. Different taxonomies have utilised different approaches. For example, the CBI Taxonomy provides an overview of all sectors and activities and employs a traffic light system to demonstrate which activities/assets/projects are automatically compatible with the taxonomy, might be compatible if compliant with detailed criteria, or are not compatible. The EU Taxonomy utilises a similar approach although it makes use of quantitative metrics and thresholds (e.g., eligibility criteria of 100g CO_2/kWh for electricity production activities). The China Green Taxonomy takes a different approach and provides a detailed 'whitelist' of all projects and asset types that are considered as green.

Taxonomies have evolved to incorporate other aspects such as social standards and metrics. The EU Taxonomy, for example, includes social standards and minimum safeguards. Social metrics, however, have not yet been developed in international taxonomies.

Given the above, this **document will mainly refer to green taxonomies** as these are currently in use in the financial sector globally. However, it is recommended to include minimum social safeguards and then to develop social metrics over time.

2.2 A taxonomy establishes guidelines for green development

The purpose of a taxonomy is to act as guidance for greening the economy. Financial actors might not be experts in assessing investments aligned to climate or environmental objectives. To ensure that the financial sector can support the global climate urgency, it is important to give clear guidance on the selection of assets, activities, and eligibility criteria. This is particularly important in the Chilean context as the Chilean financial regulator for bank, insurance and securities, also identified the development of a taxonomy as a priority to support market development and to avoid greenwashing, facilitate risk management, and promote investments (CMF, 2020).

Clear definitions also enable financial market participants to improve their

reporting methods and standards. The pension funds regulator in Chile (SP) also published new regulation which incorporates climate risks and related ESG factors and mandates incorporation of such analysis for investments by administrators of pension funds; this will be implemented on May 3, 2021 (Superintendencia de Pensiones, 2020).

The financial regulator, CMF, has also published a modification to the regulation 386 which is currently under public consultation. The modification seeks to expand and refine the information required in the Social Responsibility and Sustainable Development Report that issuers of securities must include annually in their reports (CMF, 2019).

Thus, apart from acting as guidance for establishing definitions, taxonomies also support other sustainable finance initiatives and efforts.

2.3 A Taxonomy is a tool for transitioning high emissions sectors

While green and sustainable bonds and other types of debt have positively impacted inflows of capital into green projects, high GHG emitters are still largely absent from the market. Such actors do, however, have a vital role to play in reducing global emissions – and are often key constituents in mainstream investment portfolios. Transition bonds have emerged to fill this gap but there is a need for clear guidance on what this means for financial products and whole entities.

A green taxonomy can also be a tool for transition for high-emitting industries, companies and portfolios as the migrate towards a low carbon pathway and meet the goals of the Paris Agreement.

Detailed research was conducted by CBI with stakeholders in the financial market and with policy makers to understand their views on transition. The following conclusions were reached (CBI, 2020f):

- **Ambition is essential** for any definition of transition – it should mean a significant reduction in GHG emissions and alignment with the Paris Agreement.
- Issuance should be accompanied by an **entity-level carbon reduction** strategy consistent with the Paris Agreement.
- Transition should be **applicable to carbon-intensive** sectors like iron and steel.
- **Better guidance on transition pathways is needed**, ideally with emissions thresholds, particularly for some sectors and activities.

To support credible transitions, CBI recommends certain **guiding principles to ensure transparency and avoid greenwashing** (CBI, 2020f) for transitional, near-zero and net-zero activities. These should be considered when formulating green taxonomies. The key principles for developing taxonomies with transition pathways are described below:

1. **Credible transition goals and pathways align with 1.5°C global warming limit**: The goal of the Paris Agreement is to limit global warming by 2°C and ideally by 1.5°C. The IPCC Special Report on Global Warming of 1.5°C presented viable pathways which include reduction of global emissions by 45% from 2010 levels by 2030 and net-zero by 2050 (IPCC, 2018).

2. **Credible transition goals and pathways are established by the climate science community** and are not entity-specific: To achieve the 1.5°C target and to allocate the GHG budgets for countries and economic sectors is a complex challenge. Addressing this complexity requires an understanding of the emission pathways through climate modelling scenarios based on emission profile and technological options. Hence the pathways should not be determined by individual institutions or individual countries (current NDCs are not sufficient) but rather should be harmonised globally based on scientific data (CBI, 2020f).

3. **Credible transition goals and pathways do not count offsets** but should count upstream scope 3 emissions (e.g., raw material supply chain) as much as possible: Transition pathways should not consider offsets through other activities such as purchased carbon credits, offsets through natural carbon capture and storage such as via agriculture, forestry or artificial carbon capture and storage through direct air capture. Offsets reduce transparency and divert attention from the reduction of inherent GHG emissions. Additionally, it is important to consider scope 1, scope 2 and upstream scope 3 emissions based on reasonable expectations and traceability of upstream scope 3 emissions (CBI, 2020f).[04]

4. **Credible transition goals and pathways take into account technological viability**, but not economic competitiveness: The pathways and goals should be technology-neutral to reduce emissions and encourage innovation. The assessment should not rule out the use of viable technologies even if they are not currently cost-effective (CBI, 2020f).

5. **Credible transition means actually following the transition pathway** – pledges and policies are not sufficient: Pledges and policies are only an intent of commitment and are not sufficient to achieve the global climate goals. The focus should be

04 Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. See ghgprotocol.org/sites/default/files/standards_supporting/FAQ.pdf for more detail.

on the impacts today or over the investment period and performance should be based on actual operating metrics, rather than assessing the future effectiveness through policies (CBI, 2020f).

Examples of activities under the transition framework are shown in **"Annex 5: Examples of activities under the transition framework"**. An overview of the guiding principles is shown below:

Figure 2: Guiding principles for the development of taxonomies with transition pathways

1. **In line with 1.5 degree trajectory** All goals and pathways need to align with zero carbon by 2050 and nearly halving emissions by 2030.
2. **Established by science** All goals and pathways must be led by scientific experts and be harmonised across countries.
3. **Offsets don't count** Credible transition goals and pathways don't count offsets, but should count upstream scope 3 emissions.
4. **Technological viability trumps economic competitiveness** Pathways must include an assessment of current and expected technologies. Where a viable technology exists, even if relatively expensive, it should be used to determine the decarbonisation pathway for that economic activity.
5. **Action not pledges** A credible transition is backed by operating metrics rather than a commitment/pledge to follow a transition pathway at some point in the future. In other words, this is NOT a transition to a transition.

Source: Climate Bonds Initiative, 2020f[05]

2.4 Need for a national taxonomy: To steer the market

A potential national taxonomy for Chile would be beneficial in the following ways:

- **To steer the market**, provide guidance and increase capital flows for green projects.

05 Offsets reduce transparency and do not address inherent emissions. Scope 1,2 and upstream 3 emissions must be addressed by the chosen pathways.

- **To gain further access to European and other international capital flows** and to improve global trade relations by aligning with international green definitions; and
- **To lead the global initiative** for developing criteria for sectors such as mining for which there currently is no international reference.
- **To identify climate aligned activities, assets and projects** from the productive sector to deliver a low carbon economy.
- **To support Chiles's NDC implementation** and to facilitate government monitoring

The need for a national taxonomy can be assessed by engaging with various stakeholders using mechanisms such as formal surveys, interviews, an independent committee, or a third-party analysis of the market needs. In the EU, the development of a taxonomy was one of the specific recommendations of the High-level Expert Group (HLEG) on Sustainable Finance that was commissioned to identify the policy instruments required to meet the goals of the European Green Deal and the Paris Agreement (EU HLEG on Sustainable Finance, 2018). In Colombia, for example, the financial regulator conducted a survey among key financial sector entities and banks to assess the need to mitigate the climate-related risks and to promote green finance (SFC Colombia, 2019). In this survey, the financial sector pinpointed the need for a green taxonomy and a clear classification and guidance for the identification of green projects.

In Chile, the CMF published the '**Strategy of the CMF for the financial markets to face the challenges of climate change' which identified developing a taxonomy as a priority** for market development (CMF, 2020). The CMF has also aligned to the NGFS' commitments to actively contribute to greening the financial system in the country. The NGFS has identified certain challenges, which are also relevant for Chile, such as integrating climate-related and environmental risks into capital requirements and other risk analysis. Without standardised information, risk analysis in the country will not be reliable and, therefore, the exposure to climate risks can be miscalculated. (NGFS, 2020).

In this sense, a national taxonomy is useful, especially for the financial regulators and the government, to fulfil their mission to protect investors and the stability of the financial system and at the same time meet climate goals.

2.4.1 The importance of harmonising with international guidelines

To allow capital to flow without frictions and to **gain access to preferential international capital**, it is essential to ensure that green **definitions are aligned with international developments** while ensuring their coherence with the national context. This has been proven by

the annual issuance of Sovereign Green Bonds since 2019, in which the Ministry of Finance in Chile was able to raise funds in the international markets at favourable yields, partly by aligning the use of proceeds with certified projects in line with international green standards. The green bonds have also seen increased participation by ESG-focussed investors. In 2019, approximately 76% of investors in the Euro transactions and 35% of investors in the USD transactions were ESG investors (Ministerio de Hacienda, 2019). In 2021, these figures increased to 80% and 50%, respectively. (Ministerio de Hacienda, 2021).

International investors are looking for comfort that the investments they make are supporting the goals of the Paris Agreement. Therefore, any national taxonomies established should be in line with this. Additionally, for European investors, when the EU Taxonomy regulations come into force, they will be required to disclose what percentage of investments (both within and outside of the EU) are in-line with the EU Taxonomy. By June 2021, the European Commission will adopt an act to determine how these obligations should be implemented in practice. Guidelines that are aligned with the EU Taxonomy will therefore reduce friction in the market, allowing European investors to easily identify green financial instruments.

Harmonisation does not mean they have to be identical, but they should be functionally equivalent so that the spirit and overall direction of the taxonomies are in line with international equivalents.

This point is critical – we cannot meet the goals of the Paris Agreement if hundreds of different taxonomies are established, each with different goals and time horizons.

With this in mind, the International Platform on Sustainable Finance has announced the initiation of a working group that is working on a 'Common Ground Taxonomy' that will highlight the commonalities between existing taxonomies, including the EU Taxonomy and the China Taxonomy.

This 'Common Ground Taxonomy', when released, will act as a good starting point for other national taxonomies.

2.4.2 Pros and cons of a national taxonomy

The development of a national taxonomy has several potential implcations for Chile. The benefits are shown below:

Pros: Guidance and international harmonisation with trade partners

Figure 3: Benefits of a taxonomy

- **Guidance for Chilean issuers;** grow Chile's green financial market, help avoid greenwashing, provide guidance for private sector investors.
- **Guidance for non-financial sector and regulators;** helps identify green projects and assets across sectors.
- **Access preferential capital;** to meet Chile's climate goals, in particular, the growing international pool of capital with green mandates that are aligned with the EU and/or other taxonomies. A national taxonomy that is aligned with international taxonomies will reduce friction in the market and enable the flow of international green capital into Chile.
- **Identify lower risk investments universe;** help identify low climate/sustainable risk projects for ESG-focused investors and act as a tool for risk managers.
- **Rule set to provide incentives and access green funds,** while helping the CMF and the Ministry of Finance to efficiently evaluate and monitor the green projects.
- **Comply with trading partner standards;** China and EU. A national taxonomy has potential positive impacts on international trade with partners such as the EU and China as it ensures compliance with their criteria for sustainable investments. For example, the EU is Chile's third-largest trading partner, accounting for approximately approximately 11.8% in 2020. The biggest exports to the EU were mineral products, vegetable products and base metals while the imports were in machinery, transport and chemical products.
- **International trading partners adopting a taxonomy will have effects on trading relations;** Chile having a taxonomy will be a competitive advantage in the region and an opportunity for the country to be prepared against restrictions and enable sustainable investments. The taxonomy of Chile and its alignment with the EU Taxonomy, for example, will therefore potentially impact Chile in its trade.
- **Increase the market flows** by redirecting the investments into the sustainability and green projects aligned with the Paris agreement goals.

Source: Climate Bonds Initiative

Cons: Time and resources

The challenges faced in developing and maintaining a national taxonomy are described below:

Figure 4: Challenges in developing and establishing a taxonomy

Development process

- **Time consumed**. EU (Approximately 2 years), Colombia (Approximately 1 year – still in progress) The process might require ample resources and time as it is a multi-stakeholder engagement between public and private stakeholders.
- **Resources**. The process requires experts and contributors from international cooperation or multilateral banks who will be involved in various governance committees; however, some could be engaged on a pro-bono basis. Resources could be managed by collaborating with international agencies or consultants who could either bring their own resources into the project or be financed by Chile.
- **Ease of adoption/adaptation of activities or criteria** from an international taxonomy due to lack of baseline data, standards and technology gaps.
- **Developing new data information** where not already available. For some sectors, such as mining and aviation, which do not have international standards in other taxonomies, there might be a need to create an international focus group to develop the criteria for the activities in the sector.

Maintaining a taxonomy

- **Monitoring and reporting costs**. A committee in charge of the development of the taxonomy should be created and will oversee updates and modification of the subsequent versions and the implementation of the taxonomy.
- **Updates and new developments**. Capacity building of various stakeholders in the market of both public and private sectors is important for the successful adoption and implementation of the taxonomy once it has been developed.

Source: Climate Bonds Initiative

The benefits of having a taxonomy in place are clear both in this report and in the practical experiences in the EU and China where the establishment of national taxonomies has completely changed the sustainable finance landscape. The challenges, however, are largely related to resources and time taken to assemble and maintain a taxonomy which appear surmountable despite the fact that it is impossible to demonstrate empirically whether the benefits outweigh the costs.

As taxonomies become commonplace around the world and investors, particularly in Europe, are expected to demonstrate their sustainability credentials in relation to a taxonomy, issuer alignment with international taxonomies will become a minimum requirement to attract capital. This means that Chilean entities looking to attract international capital will need to start understanding how to align with taxonomies in the short-term. By developing a national taxonomy now, Chile can remain ahead of the curve in preparing for the changing finance landscape. China, for example has catalysed green investments into their market with their policies on green finance and green bonds. The taxonomy in China has served as guidance for green industries and green projects. There is a positive correlation between local green finance policies and green bond issuance as the green bond market in China has grown exponentially since the *Green Industry Guidance Catalogue* entered into effect in 2015, increasing the appetite of international investors in China's green bond markets. The total number of green bonds have increased by about 60% compared to 2016 and China was the largest source of green bond issuance globally in 2019 with approximately USD 259bn meeting the climate bonds definitions (CBI, 2020g).

3. Pathways for developing a National Taxonomy for Chile

There are several pathways available for Chile to develop its own taxonomy with varying degrees of support from external stakeholders. Such options include:

- **Pathway 1: Adopt the activities and criteria from an international taxonomy** such as the EU Taxonomy. This would ensure harmonisation and reduce the time and resources required but would also imply significant challenges in adopting thresholds that might be hard to achieve in the domestic market, and in dealing with sectors not included in international taxonomies.
- **Pathway 2: Adapt and modify the international taxonomies to suit the local context in Chile**. This would ensure harmonisation with international taxonomies as well as alignment with the local needs and conditions, while trying to minimize the risks of adopting hard- to-manage thresholds. This approach would, however, need to be accompanied by efforts to develop and integrate important sectors of the domestic economy under the model of the adapted international taxonomy.
- **Pathway 3: Develop a new taxonomy from scratch.** This would involve defining the objectives, evaluation of sectors, eligible activities, criteria, and other components described further in this report.
- **Pathway 4: Collaborate with other countries** in the region to develop a regional-level taxonomy. This approach would require coordination between countries in the region to establish a common framework and objectives to develop a common taxonomy. Additionally, it may be challenging to adapt such a regional taxonomy to the countries due to possible differences in regulatory frameworks.

Recommendation 1: Pursue Pathway 2 of starting with an international taxonomy (e.g., EU Taxonomy or Common Ground Taxonomy as mentioned to be developed by the IPSF) as a reference and adapting the criteria to suit the local needs wherever necessary.

Pathway 2 is recommended as a good balance between both leveraging existing work in this area and accounting for local circumstances. Many of the national taxonomy development discussions that are taking place around the world are looking to follow Pathway 2, albeit in different ways. In the region, Colombia has opted to follow pathway 2 as well, where the EU Taxonomy has been the basis of the development of their national taxonomy and then adaptations were incorporated where needed.

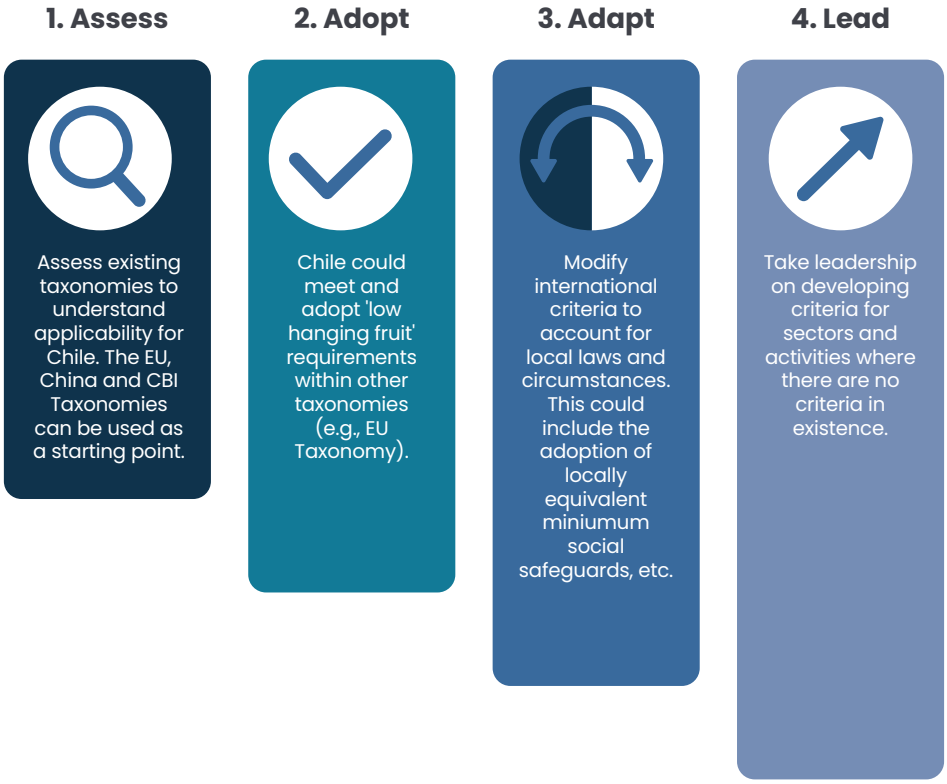
Collaboration with other countries is also a possibility although this can be difficult to orchestrate within the timeframes that each country is working towards. We also note that there are no regional developments in Latin America at this stage.

The other two pathways (1 and 3) are not recommended for Chile. The reasons for this are that; for pathway 1) simply adopting an existing Taxonomy might mean that relevant sectors of the Chilean economy get excluded or not adequately assessed for local specificities; and for pathway 2) developing a taxonomy from scratch without taking into consideration existing exercises is unlikely to prove cost-efficient as it will either a. require significantly more resources to arrive to similar conclusions for most sectors or b. if it diverges significantly from other international taxonomies (e.g. for being too country specific) Chilean issuers and market players may struggle to insert themselves into the global sustainable finance market as the analysis to understand the differences between taxonomies will increase transaction costs for investors.

Process of pursuing Pathway 2

The first step of the taxonomy development is to review the international taxonomies such as the EU, China and CBI taxonomies. The assessment should result in a list of activities across sectors that substantially contribute to climate change mitigation and adaptation. Subsequently, fast-track activities must be identified. These are the activities that can be directly adopted from international taxonomies (low-hanging fruit e.g., direct eligibility for production of electricity from solar PV) or adaptation with modification of the criteria to suit the local context (e.g., use of local building benchmarks to establish criteria for activities in the building sector). Finally, for sectors and activities where there are no **international references**, Chile can take leadership and develop criteria (e.g., activities under the mining sector).

Figure 5: Pathway to developing a national taxonomy for Chile



Source: Climate Bonds Initiative

Recommendation 2: The work of the taxonomy development in Chile should start by assessing existing local and international taxonomies.

This could take place through past/current technical national dialogues such as the Conference of Parties (COP) 25 Scientific Committee of Chile and would save both time and resources while ensuring local technical understanding of international standards.

Alignment of activities with international taxonomies can roughly be divided into two categories:

1. **Fast-track**:

- **Low hanging fruit (Adopt)** – These are activities for which the eligibility criteria could be adopted directly to suit the local needs.
- **Modifications required (Adapt)** – These are activities where a gap assessment has shown that modifications are required to fully align with international standards.

2. **Unique to Chile** - Some sectors and activities are either unique to Chile or there are no available criteria in other taxonomies.

Examples of an initial gap assessment for the main sectors in Chile are described further in **"Annex 4: Sector gap assessment: Examples of technical review"**. The assessment provides an overview of key policies and standards that should be considered during the elaboration of the criteria. This also serves as a guide to conduct assessments for other sectors. The granular technical assessment of metrics and thresholds for all the activities should be carried out by technical experts during the taxonomy development.

Recommendation 3: Start the process by selecting fast-track activities (the activities which can be directly adopted/adapted to Chile from international taxonomies without any modification such as renewable energy, electric transport, and green hydrogen, among others) – this will make the process both easier and faster. The selection of such activities for the Chilean taxonomy is not in the scope of this report. However, potential ways to assess the activities are described further in the report.

Recommendation 4: For activities unique to Chile, utilise alliances and collaborations with international groups such as the IPSF or adaptation and resilience dialogues could be beneficial (e.g., mining and aviation). Alternatively, specific subgroups could be created to elaborate the activities and criteria to start with for more complex sectors and activities.

4. Establishing the overarching objectives

The taxonomy's objectives can cover a range of climate and broader environmental objectives. Climate objectives are related to mitigation through the reduction of GHG emissions or adaptation to the effects of climate change. Wider environmental objectives include biodiversity and protection of ecosystems, protection of water resources and circular economy, among others. Social objectives can be incorporated ensuring compliance with social performance standards and safeguards available internationally (e.g., OECD Guidelines for Multinational Enterprises) or nationally as mentioned above.

The taxonomy must be coherent with the national context and policies and commitments to international conventions and agreements but should be more ambitious compared to them and be **driven by scientific information. The objectives of a taxonomy should consider the following:**

Figure 6: Consideration for objectives of a taxonomy

1. **Goals:** Clear goals related to the chosen objectives of the taxonomy (green, climate, sustainable, etc.) which are measurable or can be easily evaluated. For example, achievement of 2030 mitigation targets, carbon neutrality or net-zero goals, etc. for a Climate-based taxonomy.
2. **Strong ambition:** Higher ambition than some NDCs, national plans and policies in line with climate goals above.
3. **Approach:** Scientific approach that ensures clear standards for various sectors and activities.
4. **International alignment:** Consistency with international standards and taxonomies (e.g., the EU taxonomy) will facilitate inflows and outflows of international capital. This needs to be evaluated during the development of the taxonomy as transition pathways may differ from EU/international taxonomies for certain sectors.
5. **SDG Alignment:** alignment with the Sustainable Development Goals and global climate change goals.

Source: Climate Bonds Initiative

4.1 Setting the objectives of a national taxonomy

The first step of the taxonomy process is to define the **principal objective(s)**, such as climate and environment. These broad objectives could be chosen based on global ambitions or the country's priorities. Subsequently, the specific objectives can be determined.

More objectives mean that the taxonomy can be aligned with broader societal and environmental goals of the national economy. However, choosing multiple objectives makes it harder/more time consuming to develop all associated screening criteria for all objectives. A phased approach is often required to meet multiple objectives.

There can be more than one primary objective. The EU Taxonomy has six main objectives, all of which are equally important for the selection of activities, and the China Taxonomy has three main objectives.

However, **a taxonomy does not necessarily need to address all objectives at once**: the EU Taxonomy process started by addressing climate mitigation and climate adaptation objectives first. In October 2020, the process of addressing the other objectives began.

The objectives of international taxonomies are shown below:

Table 1: Objectives of international taxonomies

Objectives	CBI Taxonomy	EU Sustainable Finance Taxonomy	China: Project Catalogue draft of 2020	Colombian Taxonomy draft (work in progress)
Climate Change mitigation	Yes	Yes	Yes	Yes
Climate Change adaptation and resilience	Yes	Adaptation	Yes (contribution to environmental improvement)	Adaptation
Achieve resource conservation and efficient utilization		Protection of water resources	Yes	Protection of water resources
Transition to a circular economy	* Not specifically but covered, in part, through Waste criteria	Yes		Yes
Pollution prevention and control		Yes	Yes	Yes
Protection of healthy ecosystems		Yes	Yes (not specified)	Yes

Source: Climate Bonds Initiative, 2020a, 2020c; EU TEG on Sustainable Finance, 2020; SFC, 2020a

Note: The Colombian Taxonomy is currently being developed. The above-mentioned information is based on the current development and the final official version might have differences.

Table 2: Comparison between environmental objectives of the EU Taxonomy and China Taxonomy

EU Objectives	China Objectives
Climate change mitigation	Climate change response
Climate change adaptation	
Sustainable use and protection of water and marine resources	Environmental improvement
The transition to a circular economy	
Pollution prevention and control	
Protection and restoration of biodiversity and ecosystems	Resource efficiency: circular economy, waste recycling and pollution prevention

Based on information from IPSF secretariat, 2020

4.2 Objectives for Chile: Focus on climate and environment

To identify potential objectives for a taxonomy in Chile and to understand the focus and goals of various local entities, different initiatives and policies were analysed such as the commitments under the Green Agreement and the revised NDC.

In July of 2019, the Chilean Ministry of Finance constituted *La Mesa* with the support of the IADB, the UK Embassy and UNEP-FI. This initiative convened all the actors of the local financial sector - investors, banks, insurers, and pension funds - and financial regulators with the aim of defining a common framework to assess the opportunities of the transition to a low carbon economy and management of climate-related risks through a Green Agreement. The Agreement was launched in December of 2019 as the first step in the voluntary implementation of a broader public-private agenda.

The Agreement defines certain principles aligned with the requirements of the Taskforce for Climate Related Financial Disclosure (TCFD) and specific industry commitments which cover mainly Climate but also considers Environmental, Social and Governance commitments, as shown in Figure 7.

Chile's updated NDCs adopted in April 2020 has revised the ambitions of climate change goals to limit the global warming target to 1.5°C. Chile's international climate commitments are also aligned with the national plans through the Climate Change Framework Bill (Government of Chile, 2020), in discussion in Congress. For the mitigation targets, the NDC has adopted an unconditional absolute emissions intensity target of 95 $MtCO_2$ by 2030 with emissions peaking in 2025, a carbon budget of 1.100 $MtCO_2$ for 2020-2030, and leading to a carbon neutrality goal by

2050. In terms of adaptation and resilience, Chile has established targets for water management and sanitation, and disaster risk management. Water security and water management at different levels have been prioritised to adapt to climate change. Additionally, local pollution management and improvement of air quality have been included as targets in the NDC. To build a resilient country, the NDC also acknowledges the importance of conservation and restoration of biodiversity, recognition of ecosystem services and incorporating the cultural diversity in its decision-making processes (Government of Chile, 2020).

How does adaptation fit in? Adaptation is a key objective that can be included in the Taxonomy as it builds into each sector and should be discussed with each sector's experts. Although adaptation is a very specific objective, this was one of the first objectives established in the EU Taxonomy.

Recommendation 5: Align objectives with the broad goals of other international taxonomies to ensure harmonization – i.e., climate change mitigation, water conservation, pollution prevention and protection of ecosystems.

The chosen objectives could be selected at once for the first draft or could be added subsequently in subsequent versions. This can be decided based on the priorities of the objectives, timelines, and resources available for the process.

A summary of the analysis is shown below:

Figure 7: Analysis of goals and priorities of the NDC and the entities part of Acuerdo Verde in Chile

Institution & Rank	Climate Change	Environment	Social	ESG	Focus
1. Financial Sector entities	✓				Climate
2. Financial Sector authorities	✓				Climate
3. Ministry of Finance	✓			✓	Climate
4. Central Bank of Chile	✓			✓	Climate
5. Commission for Financial Markets	✓				Climate
6. Regulator for Pension Funds	✓	✓	✓	✓	Sustainability
7. Administrators of Investment Funds	✓	✓		✓	Green
8. Administrator of Mutual Funds	✓			✓	Climate
9. Administrator of Pension Funds	✓				Climate
10. Insurers	✓	✓	✓	✓	Sustainability
11. Public and Private Banks	✓	✓	✓	✓	Sustainability
12. Securities Intermediaries	✓				Climate

Based on inputs from Government of Chile, 2020 and Ministerio de Hacienda, 2019

4.3 Ensuring one objective does not compromise another

One challenge faced in meeting multiple environmental objectives is to ensure that activities making a substantial contribution to one objective do not also cause harm to another objective.

To solve this problem, the EU Taxonomy applies a 'Do No Significant Harm' principle (DNSH). This means that to be eligible under the EU Taxonomy, an activity must also DNSH to any of the other five objectives.

For every mitigation activity, DNSH is being defined for the five objectives of adaptation, circular economy, water, pollution, and ecosystems. For example, a hydropower project should comply with the eligibility criteria of a power density of 5 W/m^2 and additionally meet the DNSH requirements for compliance such as the implementation of a river basin management plan, compliance with EU regulations, and Environmental Impact Assessments according to the EU directives, among others.

Social considerations are also increasingly being incorporated in Taxonomies worldwide, though specific metrics and indicators are yet to be developed.

In the EU Taxonomy, activities must also comply with minimum social safeguards as well as with all the applicable local regulations. Minimum social safeguards include the OECD Guidelines for Multinational Enterprises and the United Nations (UN) Guiding Principles on Business and Human Rights. Additional stringent regulations apply wherever required (EU TEG on Sustainable Finance, 2020).

Recommendation 6: For the social aspects, Chile can use the national laws and other **social safeguards** such as the OECD Guidelines on Multinational Enterprises, UN Guiding Principles on Business and Human Rights with reference to ILO Core Labour Conventions, etc. A further deep dive into other social objectives for the Taxonomy could be developed over time.

5. Selecting priority sectors and activities

The Taxonomy should **cover all key sectors** of the economy, but it **should also list which sectors/activities are excluded for not being climate-compatible/green-aligned** (e.g., fossil fuel extraction). The selection of sectors is a practical prioritisation and could be determined by the intersection of importance to the local economy, employment, and impact on selected environmental and social objectives. An initial assessment of the sector prioritisation for Chile has been described further in this section.

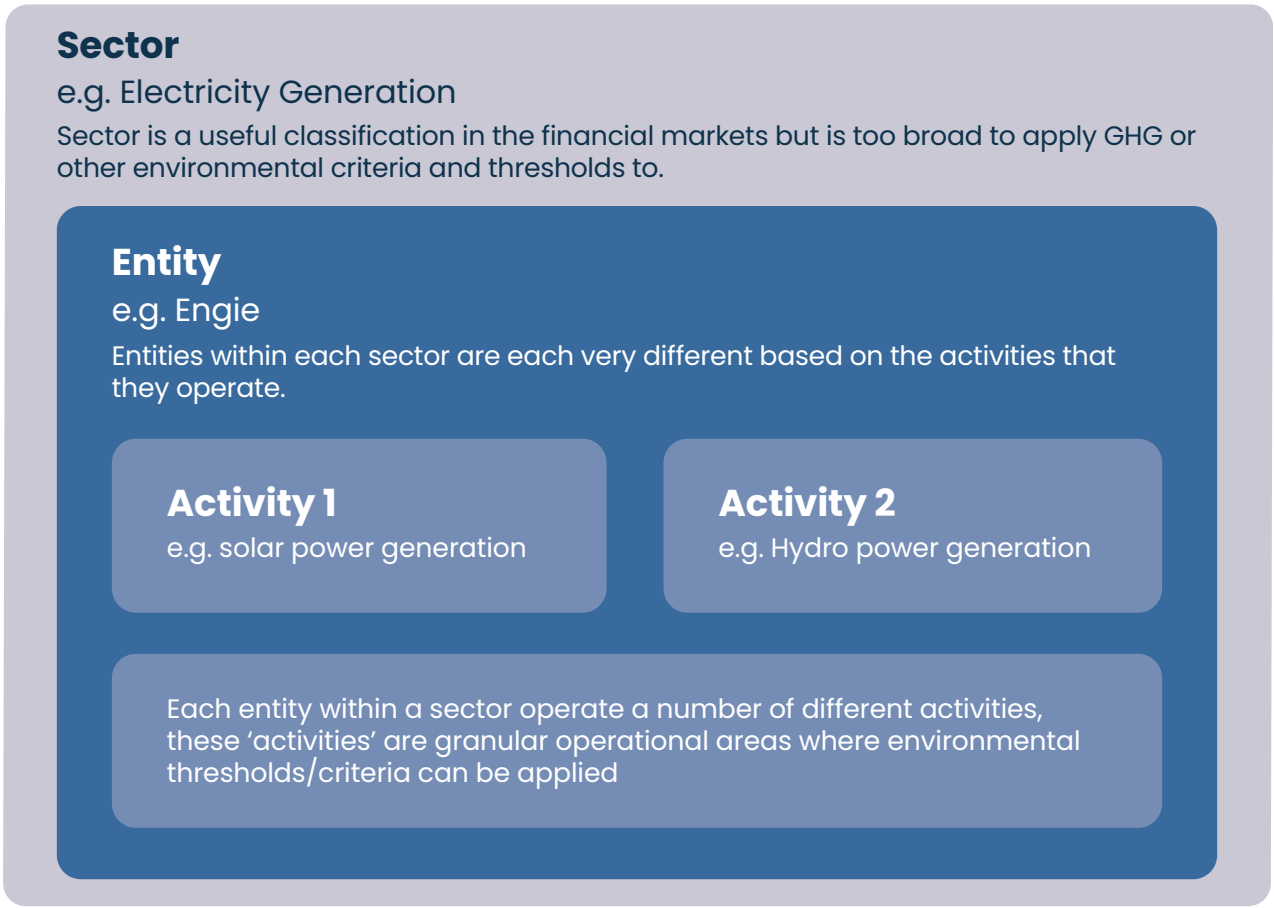
As an example, the EU Taxonomy initially identified 21 sectors based on NACE codes, NACE being the statistical classification of economic activities used in the EU. This was later narrowed down to eight sectors using the Eurostat 2016 emissions inventory. These sectors and activities covered approximately 93.5% of the GHG emissions in the EU (EU TEG on Sustainable Finance, 2020).

5.1 Activities and sectors

In financial markets, 'activities' are not commonly used to categorise companies. Instead, sectors are more commonly used.

Activities are used in the EU Taxonomy to provide more precise guidance around how eligibility criteria and thresholds apply. This is because sectors are too broad to attach criteria to.

Figure 8: Example of the relationship between sectors and activities



Source: Climate Bonds Initiative

5.2 Sector analysis in Chile

The selection of initial sectors for the taxonomy could be carried out by evaluating parameters such as capital flows, issuance of bonds or use of proceeds, GHG emissions, or priorities of national climate change plans.

In creating the EU Taxonomy, the main consideration used in the initial phase was to select sectors and activities based on their potential to make a substantial contribution to climate change mitigation or climate change adaptation.

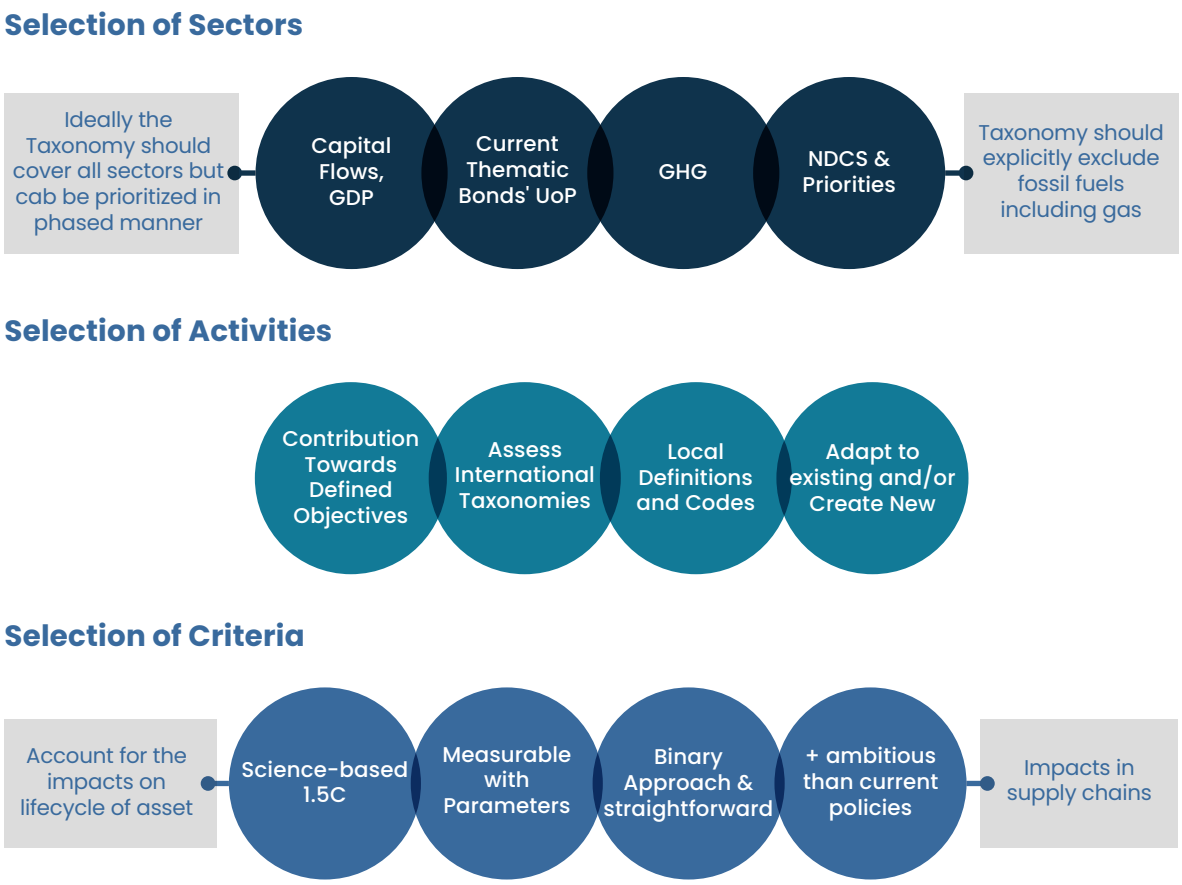
The Colombian Taxonomy prioritised the sectors based on the local green bonds' use of proceeds, GHG mitigation potential and targets under the Paris Agreement, capital flows and a qualitative parameter of viability/effectiveness and ease of implementation of measures to help the sectors transition towards the climate goals.

For each selected sector, relevant activities should be chosen depending on the contribution of the activity for the chosen objective. The activities could be adopted/adapted from the international taxonomies or new activities unique to the country could be incorporated.

Mapping of the selected activities with international or local activity codes could help in the monitoring and tracking of investment flows and connect with other existing classification systems to avoid duplicity during the implementation of the taxonomy. For example, the codes established by Servicio de Impuestos Internos (SII)), International Standard Industrial Classification (CIIU in Spanish), in Chile can be used for mapping the economic activities in all the sectors.

Finally, for all the selected activities it is important to develop clear, binary, and easily measurable screening criteria which are based on science and help align with the 1.5°C goals of the Paris Agreement.

Figure 9: Considerations for the selection of sectors, activities, and criteria



Source: Climate Bonds Initiative

Based on the chosen objectives of the taxonomy, the sectors that significantly contribute to the objectives can be prioritised for development in a phased manner or all the relevant sectors can be developed simultaneously.

To prioritise the sectors, the following data was evaluated:

Table 3: Data for analysis of sectors

Parameters	Agriculture	Forestry & Land use	Construc-tion	Energy	ICT	Industry	Transport	Waste	Water
Bank credit allo-cation ($) Million Chilean Pesos until Dec 2019	3.069.659	533.021	9.900.276	3.542.234	1.069.253	7.849.200	4.013.089	N/D	Part of Energy
Foreign Direct Investment (USD Million)	281	N/D	301	17.804	1.381	14.340	11.794	N/D	N/D
GDP Related Economic Activity (USD Million)	8.246	N/D	19.453	8.526	5.899	28.366	14.130	N/D	N/D
GHG Emissions (tCO_2/year)	11.789.416	-63.991.903	7.936.420	50.403.176	N/D	6.611.329	28.614.668	8.143.844	N/D
Use of Proceeds, Green bonds (USD Million)	-	200	547	456	-	-	5.743	100	-

Inputs from Ministry of Hacienda, Ministry of Environment, CMF, and Central Bank of Chile, 2020

Note: Key considerations of the data provided by the Ministry of Environment, the Central Bank of Chile, and the CMF: The emissions data was provided by the Ministry of Environment. The Construction sector includes residential, commercial, public, and other uses. The Energy sector considers emissions from use of fossil fuels in various sectors including electricity generation, industry, mining, and fugitive emissions. The emissions from Industry considers emissions from all industrial processes. The Waste sector includes solid and liquid waste emissions. Foreign Direct Investment (FDI) and Gross Domestic Product (GDP) data were provided by the Central Bank of Chile. The FDI for the Agriculture sector includes Forestry. The Industrial sector includes food and beverage, textiles, wood, paper, chemicals, non-metallic minerals and base metals and machinery, and equipment, among others. The data used in the analysis were from different sources and for certain parameters and sectors, there were no data available at the time of analysis. Hence the analysis can potentially have discrepancies.

The assessment of the above data resulted in the following ranking for prioritising the sectors:

Table 4: Prioritization of sectors based on financial parameters and emissions data

Ranking					
#	GHG emissions	Bank credit	FDI	GDP	UoP
1	Energy	Construction	Energy	Industry	Transport
2	Transport	Industry	Industry	Construction	Construction
3	Agriculture	Transport	Transport	Transport	Energy
4	Waste	Energy	ICT	Energy	Water
5	Construction	Agriculture	Construction	Agriculture	Forestry & Land use
6	Industry	ICT	Agriculture	ICT	Waste
7	ICT	Forestry & Land use	Forestry & Land use	Forestry & Land use	Industry
8	Forestry & Land use	Waste	Waste	Waste	Agriculture
9	Water	Water	Water	Water	ICT

Note: Water, Forestry and Waste have partial data availability and hence have comparatively lower rankings.

Based on the rankings shown above, it can be observed that **Energy, Industry, Transport and Construction** appear to be the priority sectors that could be considered if the taxonomy were to be developed in a phased manner. These sectors are also the most relevant in carbon neutrality estimations for the Ministry of Energy. To verify the above results mathematically, the data was also analysed using a multi criteria decision-making method called ELECTRE. The methodology is described briefly below, and the calculations are shown in **"Annex 3: Prioritisation of sectors according to ELECTRE"**

- The raw data described in **"Table 4: Prioritization of sectors based on financial parameters and emissions data"** was sorted for analysis.
- The values were normalised to obtain unitless data based on ideal and critical values.
- Weights were then assigned equally to the normalised values for simplification of the analysis (Bank credit allocation -0,2; GHG emissions - 0,2;

FDI - 0,2 GDP - 0,2 and UoP – 0,2). However, these are subjective values.

- The weight-normalised values of the sectors were compared against each other to develop concordance, discordance, and credibility matrices.
- The final ranking was then obtained.

The results from the analysis is shown below:

Table 5: Sector priority ranking based on multi-criteria decision-making methodology

Ranking Order	Sector
1	Energy
2	Transport
3	Construction
4	Industry
5	Agriculture
6	Waste
7	ICT
8	Forestry and land use
9	Water

Recommendation 7: Energy, Transport, Construction, and Industry sectors should be prioritised if the taxonomy is developed in stages.

Although the water sector appears to have a lower ranking compared to others, it could be prioritised using a subjective ranking based on the importance of the sector to the country and its importance in adaptation and resilience.

The sub-sector of mining is of prime importance to Chile's economy. Strategically important minerals (e.g., lithium and copper) enable decarbonisation of other sectors and make a substantial contribution to climate change mitigation through the enabled activities (e.g., manufacture of electric vehicles). Their own decarbonisation is a secondary priority (CBI, 2020f). Hence, criteria for mining of minerals, important for the transition, should be developed in parallel. Since there are no reference benchmarks in international taxonomies, the work could be developed with an inter-

national focus group such as the IPSF of which Chile is a part. This will require more time and resources compared to other sectors.

Regardless of the sector prioritisation, adaptation-related activities should be developed in parallel as both mitigation and adaptation are equally important components of climate change. A brief overview of adaptation and related criteria has been described in **"Annex 4: Sector gap assessment: Examples of technical review"**.

5.3 Activities: Start with fast-track activities across all sectors

As with sectors, the selection of eligible activities within each sector should be determined based on their contribution towards achieving the defined objectives.

The EU Taxonomy, for example, considers an activity to substantially contribute to mitigation if "the activity contributes to the stabilization of greenhouse gas concentrations in the atmosphere at a level which prevents dangerous anthropogenic interference with the climate system by avoiding or reducing greenhouse gas emissions or enhancing greenhouse gas removals through any of the following means, including through process or product innovation, consistent with the long-term temperature goal of the Paris Agreement."

For the selection of priority activities, it is important to consider both activities that:

1. Make a **substantial contribution to the objective(s) based on their own performance** *(e.g., Low carbon mobility)*, and

2. **Enable other activities to make a substantial contribution** *(Examples include the manufacture of solar PV panels, which does not contribute on its own to GHG mitigation, but rather the implementation of solar PV will help reduce emissions in the Energy sector by replacing fossil fuels. Similarly, the manufacture of electric vehicles will enable the transportation sector to reduce emissions by replacing fossil fuel-based transport. Thus, these are enabling activities).*

This allows for whole systems thinking across the economy.

Recommendation 8: Chile should start with fast-track activities (i.e., activities for which the screening criteria can be easily adopted/adapted from an international taxonomy without the need for a detailed technical review) across all the sectors simultaneously. This will save time and resources and help address activities that can be considered as "quick wins" across the sectors.

Recommendation 9: It is also recommended to map the selected activities against a classification code used in the country such as the **CIIU** (as noted earlier, the EU Taxonomy uses NACE codes for its classification system).

The chosen classification system and corresponding code shall be used for further mapping and elaboration of the sectors and activities. This approach ensures that public and private investments are trackable by the national agencies. However, the availability or non-availability of a corresponding code for an activity should not limit the selection of activities. There can be relevant economic activities for which there are no activity codes. Similarly, some activities, such as storage of hydrogen or permanent capture of GHG, do not yet have activity codes.

Table 6: Screening criteria in international taxonomies

Screening Criteria	CBI Taxonomy	EU Sustainable Finance Taxonomy	China: Project Catalogue draft of 2020	Colombian Taxonomy draft (work in progress)
Specific and quantitative criteria based on carbon emissions	Yes	Yes		Yes
Additional requirements (e.g., life cycle analysis or PCF) required for certain activities		Yes		Yes
Qualitative criteria based on carbon emissions	Yes		Yes	
Includes adaptation and resilience components	Yes			
Proxies (national benchmarks, certification schemes) were used for some activities	Yes		Yes	Yes

Source: Climate Bonds Initiative, 2020a, 2020c; EU TEG on Sustainable Finance, 2020; SFC, 2020a

Note: The Colombian Taxonomy is currently being developed. The above-mentioned information is based on the current development and the final official version might have differences.

5.4 Examples of sector gap assessment for Chile

Based on discussions with various public entities[06] and analysis of the standards, certifications, action plans and legislations, a sector gap assessment was carried out as described in **"Annex 4: Sector gap assessment: Examples of technical review"**. The assessment provides an overview of key policies and standards that should be considered during the development of the criteria. This also serves as a guide for conducting assessments of other sectors. The granular technical assessment of metrics and thresholds for all the activities should be carried out by technical experts during the taxonomy development.

The key recommendations for Chile based on this assessment are described below:

Construction:

- The baseline criteria should be established based on the existing **energy efficiency and thermal regulation** standards. The activities should include **new construction as well as renovation** of existing buildings for all types of buildings. The existing **certifications** such as the certification for sustainable housing by the Ministry of Housing and Urban Development, should be evaluated for use as **proxies**.

Energy:

- Renewable energy activities such as solar PV, solar CSP, and wind should be directly eligible, i.e., there would be no thresholds that must be met. **Geothermal, biomass and hydropower** should be required to meet additional criteria such as **environmental impact assessments** or **life cycle studies. Green hydrogen** is critical for the energy transition of Chile and, hence, the activities related to its production and storage should be included. Finally, the taxonomy should include activities that make energy systems resilient.

Transport:

- **Zero-emission** micro mobility, **electric and green hydrogen-based transport should be directly eligible** due to their importance for the transition of the sector. Specific emission thresholds must be set for non-electric, non-green hydrogen and hybrid transport; these activities should also have additional checks such as compliance with **pollution control legislations** to avoid harm to any other environmental objectives chosen.

06 Ministry of Energy, Ministry of Transport and Telecommunications, Ministry of Housing and Urban Development and the Chilean Energy Efficiency Agency

Mining:

- Inclusion of the sector in the national taxonomy is **relevant** for Chile. The international taxonomies currently do not include the mining sector and there are **no international references** for the taxonomy. Chile can lead the initiative and work with experts globally through collaborations with the members of the IPSF to develop technical criteria required to transition towards zero-emission mining.
- **The primary goal of this sector should be mining for strategically important minerals that are required for transition (e.g., lithium and copper). This should be achieved considering no significant harm to the other environmental objectives.**
- The activities should be **prioritized based on their importance to the economy and the significance of the minerals in the transition.**

Adaptation:

- In addition to developing the mitigation criteria for activities across various sectors as shown above, the taxonomy should also include criteria for activities related to adaptation and resilience. This will help in **the reduction of vulnerabilities and risks** for ecosystems and the population due to global warming and climate change. The activities for adaptation are cross-sectorial and hence the criteria for eligibility should be applicable to all the economic activities. The eligibility criteria should include the evaluation of such activities through a **vulnerability risk assessment considering the local and regional adaptation plans.**

6. Defining substantial contribution

Screening criteria define, quantitatively, what it means to make a *substantial contribution* to the overarching objectives of a taxonomy which, in turn, defines whether or not an activity is eligible for investment. Screening criteria are at the heart of what makes a taxonomy credible and valuable.

6.1 Screening criteria: Should be binary, quantifiable, and science-based

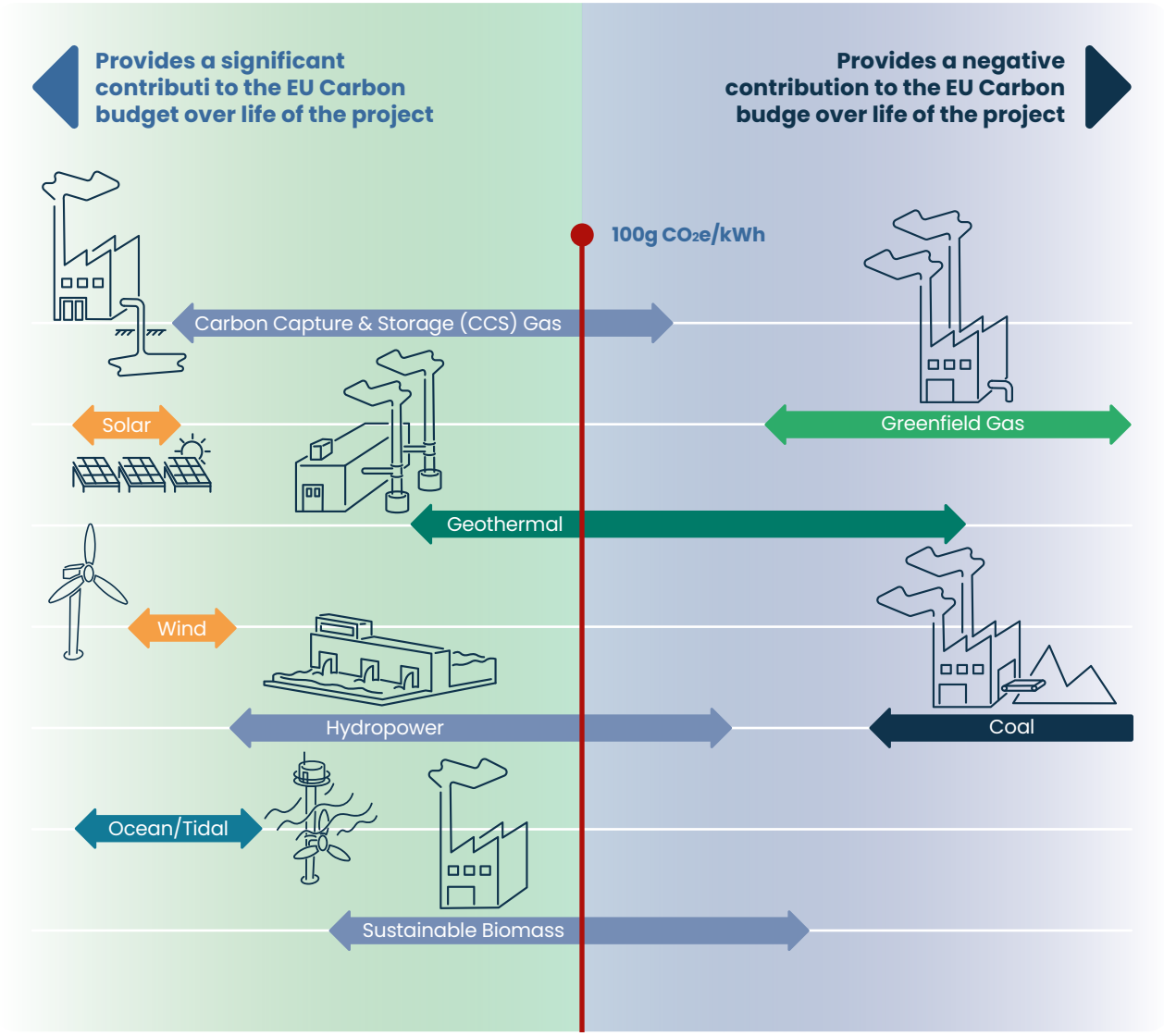
Screening criteria are a way of quantifying whether or not an activity qualifies under a taxonomy.

An example of a screening criterion under the EU Taxonomy (draft delegated act) is that all energy generation facilities must operate at lifecycle emissions lower than 100g CO_2e/kWh. This is a declining threshold which reduces to zero by 2050.

Credible screening criteria for the activities in the Chilean taxonomy should be:

- **Binary and quantifiable metrics** - That is, there should be a threshold that serves to clearly define whether an activity is eligible or not. This should be easily measurable based on established metrics for that sector. (For example, the EU Taxonomy's mitigation criteria for Public Transport set a limit for vehicle tailpipe emissions of 50 gCO_2/km. Thus, any Public Transport with tailpipe emissions above the threshold, regardless of the technology, does not qualify.).
- **Science-based** - Technical criteria should primarily be aimed at achieving the global goals rather than national policy priorities. For example, mitigation objectives should first be aligned with the Paris Agreement rather than NDCs (most country NDCs are not sufficient to meet the Paris Agreement). (For example, the transport screening criteria should be in line with the transport sector emission reductions included on International Energy Agency's (IEA) mobility models based on 2°C scenario.)
- **Subject to periodic revisions** especially for transition activities to achieve the net-zero goal over a defined period.

Figure 10: 100g criteria for electricity generation under the EU Taxonomy



Source: Climate Bonds Initiative

Example of credible screening criteria:

The Passenger car criteria under the EU Taxonomy sets a binary limit for the tailpipe emissions of 50 gCO_2/km. Anything above the threshold, regardless of the technology, does not qualify under the EU Taxonomy. For additional context, the tailpipe emissions of the average new passenger car in Europe in 2018 was 120.8 gCO_2/km, well above the threshold. The 50g threshold is in line with the Paris Agreement target to halve emissions by 2030 because: a) the target is at least 50% below the current average and b) it decreases rapidly to 0g by 2026 so that only zero emissions vehicles will qualify from that point forward.

This approach, however, might not be always possible due to the following limitations:

Figure 11: Limitations of screening criteria

Limitations of screening criteria

1. **The criteria might be too inflexible** (e.g.: energy efficiency criteria for renovation of buildings might be strict and might not be practically viable).
2. **Benchmark data may not be available to establish the criteria** (e.g.: Non-availability of energy consumption baseline data for buildings in the country).
3. **Might not be suitable for a particular objective** (e.g.: A hydropower project might meet the mitigation thresholds but does not comply with the criteria for ecosystem protection).

Other considerations

Additionally, it may be important to consider the following key points for the elaborations of criteria

1. **Account for the impacts on the stated objectives over the whole lifecycle of asset/ activity.**
2. **Upstream and downstream impacts in supply chains.**
3. **Criteria should be easy to use and easy to assess (performance verification) using compliance standards.**

Source: Climate Bonds Initiative

In case quantitative and binary screening criteria cannot be established, **alternative options such as the use of proxies (e.g., certification standards for construction), lifecycle analysis, and environmental impact assessments, among others**, could be used to establish the screening criteria.

7. Applications of the taxonomy

Public investments are not sufficient to meet the capital requirements needed to limit global warming to 1.5°C. Private and institutional investors, particularly pension funds, are increasingly seen as viable actors to fill these financing gaps. Investors and financial markets are increasingly exposed to climate risks in their investments while at the same time are presented with many opportunities to allocate capital to green projects. Project developers need to have reliable information on the sectors and activities, together with their thresholds, to identify and review the alignment of their projects with the objectives of the Paris Agreement and national policies. Taxonomies can help increase capital flows and guide the markets to achieve the climate goals and mitigate risks. The wide range of applications and users of taxonomies are described further below.

7.1 Applications: a wide range of functions and financial instruments

Taxonomies could be used for a wide range of applications such as issuance of bonds, loans, use of proceeds, reporting, portfolio reviews, development of regulations, implementation of TCFD, aimed towards increasing capital flows for environmental assets and activities.

While the applications are broad, from a regulatory perspective there are several approaches that have been used worldwide.

The China Taxonomy applies only to green bond issuers so that all green bond issuers must have use of proceeds that are aligned with the taxonomy. While the China Taxonomy may have broader unofficial applications across the economy (e.g., it may well be used by the government to develop incentives or used by investors to define their mandates), its intended use is for the green bond market.

The EU Taxonomy is more complex. It applies to:

- **Member states and the European Union** when they set out any public measures, standards, and labels.
- **Financial Market participants**[07] that make available financial products; and

07 Financial market participants include: banks, insurance companies that provide Insurance Based Investment Product (IBIP), alternative investment fund managers, investment management companies that provide portfolio management, organizations that provide occupational retirement or pension products, private equity and venture capital fund management companies, qualified social enterprise fund management companies, Undertaking for Collective Investment in Transferable Securities (UCITS), and index funds.
Bank lending activities are not included in the definition of "financial products", but they can use the EU Taxonomy voluntarily.

- **Large companies**[08] (over 500 employees) under the Non-financial Reporting Directive.

Specifically, under the EU Taxonomy Regulation, institutional investors, and asset management institutions that label and sell investment products as environmentally sustainable must explain whether and how the EU Taxonomy is applied. The EU Taxonomy and its disclosure requirements are not yet mandatory for green bond issuers. The European Commission is exploring the possibility of a legislative initiative for an EU Green Bond Standard which will be based on the EU Taxonomy.

Recommendation 10: Focus initially on applying a national taxonomy to green debt instruments (bonds, loans asset-backed securities (ABS), and other debt structured products). Once established, the scope can then be extended to other financial instruments, products and even to the entity level for large companies.

Green debt presents a huge potential market and would be particularly important in infrastructure given that typically debt [including bonds and loans] represents the largest pool of financing for infrastructure. Total external debt[09] outstanding in Chile, both private and public, stood at USD212bn as of January 2021 (Banco Central de Chile, 2021).

08 Large companies are defined as those with over 500 employees who are already required to provide a non-financial statement under the EU Non-Financial Reporting Directive (NFRD). Any company –financial or non-financial – that is subject to an obligation to publish non-financial information under the NFRD will be required to disclose how and to what extent its activities are aligned with the EU Taxonomy as of 1 January 2022.

09 External debt corresponds to the outstanding stock, at a given point in time, of the actual liabilities assumed by resident agents of an economy vis-à-vis the rest of the world (non-residents), with a commitment to make future payments of principal, interest or both. Therefore, shares and other capital participations, financial derivatives and contingent liabilities (such as credit lines), which have no obligation to pay principal or interest, are excluded. Debt in Chile is presented at market value, that is, including price variations for tradable instruments, specifically bonds.

Figure 12: Applications of taxonomies

Applications

- **Bonds, loans, structured products, project finance** have been the main instruments supporting the green financial market growth.
- **Use of proceeds & sustainability-linked instruments** by identifying and verifying proceeds that contribute to climate change mitigation and adaptation.
- **Rules for incentives** can be developed to promote convergence with the criteria and can help educate the local market.
- **Baseline to develop national and regional policies Benchmark regulations** to mitigate financial exposure to climate-related risks on their balance sheets and encourage local markets to develop green products
- **Signpost reduced policy and transition risk** by identifying potential investments exposed to physical and transitional risks.
- **TCFD implementation** in the process of being used for standard disclosures of companies and assets of sustainable and low-carbon investments in compliance with the Taxonomy.
- **Capex-Opex** has been recommended to include for identifying and delimiting activities and revenue associated with an activity.
- **National climate plans** to be regulated complying with the Taxonomy.
- **Financial markets development** by aligning public and private sector investments.
- **Develop new product**s which could be labelled as green by matching Taxonomy requirements and thresholds.
- **Channelizing investments to environmental activities** since the criteria for selection of green activities in the taxonomies are based on science and proven data, it helps in avoiding greenwashing and misinterpretation of labels.
- **Finance or refinance projects & assets** enabling transparent and easy verification of green projects.
- **Helps prevent greenwashing** and misinterpretation of labels.

Source: Climate Bonds Initiative

The various uses of taxonomies for financial instruments are summarised below and a detailed description of the appli-

cations and instruments can be found in
"Annex 1: Applications of a taxonomy".

Figure 13: Use of financial instruments with taxonomies

Instruments

- **Use of Proceeds bonds** and loans assigned only for projects with environmental benefits and those that contribute to climate change mitigation and adaptation.
- **Sustainability Linked Bonds and Loans** (SBL or SLL) are general debt instruments with a commitment of the borrower to sustainability related activities, especially for transition activities as they can be used to define and set measurable performance benchmarks and indicators which are based on scientific information.
- **Equity** money invested in a company by purchasing shares of that company in the stock market, may contribute to environmental objectives when its turnover in environmental-related activities corresponds to a minimum percentage of total turnover.
- **Asset Back Securities** (ABS) are non-mortgage investment securities that consist of a pool of assets such as loans, leases, etc. evaluated for asset alignment and disclosure of underlying investments that are taxonomy aligned. (e.g. Mortgage-Backed Securies).
- **Green Portfolios**: Investment firms can identify the green asset ratio based on taxonomy-aligned economic sectors/activities over the total assets.
- **Subsidies** and **other financial incentives**: Taxonomies could also be potentially used for development of policies to implement subsidies or other tax benefits.
- **Risks Analysis** and **Stress test**: Taxonomies could be useful to identify activities and or projects with high/lower climate-related risks.
- **Monetary Policies**: Central Banks are currently studying the climate-related issues in the monetary policy.

Source: Climate Bonds Initiative

7.2 Users: Public, private, multilateral and others

A taxonomy can be used by the entire financial system with actors such as private companies, governments, pension funds, investors, non-financial institutions, and project developers. The potential users of a taxonomy are summarised below:

Figure 14: Users of taxonomies

Users

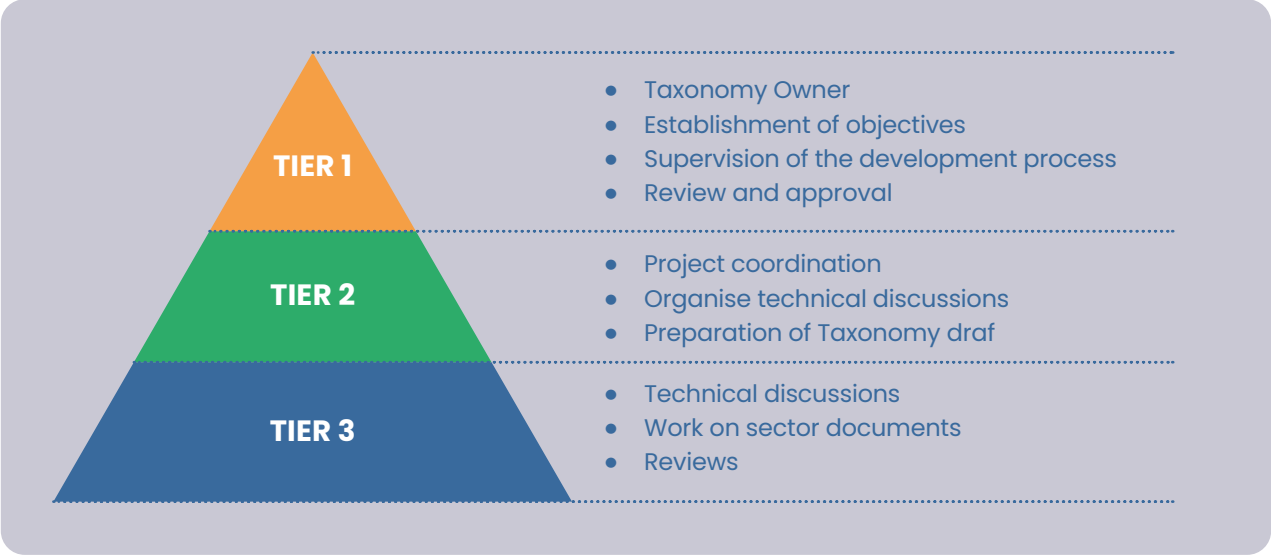
- **Financial institutions** to offer financial products as environmentally sustainable investments or as investments having similar characteristics.
- **Thematic bonds issuers** to structure and review their portfolio based on the Taxonomy.
- **Policy makers** to regulate if the resulting funds marketed as green for investments in private equity, real estate funds and private-securitised loans.
- **Multinational companies** to help in investment or strategy decisions or corporate reporting.
- **State-backed entities** to engage in commercial "environmentally sustainable" activities and be subject to governmental regulations.
- **Non-financial Institutions** treating the criteria as a benchmark with which to compare local activities to high environmental standards, appropriately informing investment decisions.
- **Investors & assets managers** to help ensure that their investments are making a significant impact, particularly for debt-based investments and achieve their disclosure obligations while reporting on their positive contributions towards a low-carbon and environmentally sustainable economy as part of their transparency commitments (e.g., ESG and other investment funds).
- **Project developers** to develop projects aligned to the Taxonomy and to conduct due diligence to avoid any violation to the social minimum safeguards.
- **National & local governments** using the Taxonomy as guidance to identify activities that meet the environmental criteria and encouraging the local markets.
- **Utilities & equipment manufacturers** may be used on a voluntary basis to structure projects whose project finance could be labelled as sustainable.

Source: Climate Bonds Initiative

8. Taxonomy governance: Roles and responsibilities

The development of a taxonomy requires several **governance roles** that need to be filled. The different roles can be broadly classified into three tiers and described in the figure below:

Figure 15: Governance structure for Taxonomy development



Source: Climate Bonds Initiative

Various bodies and entities could be chosen to fill the above-noted governance roles (e.g., Supervisory Committee to determine the objectives and recommend the taxonomy's applicability).

The development of a taxonomy requires definition of the methodology, sectors, activities, and criteria, which involves coordination and consultation among many stakeholders including the public authorities and ministries, private companies, financial institutions, and technical experts. Hence it is recommended to organise the process under a structured hierarchy with clear roles and responsibilities assigned before the start of the process.

The governance structure of several international taxonomies is shown below, and detailed examples are described in **"Annex 2: International practices".**

Figure 16: Governance structure for different taxonomy developments and potential stakeholders

<table>
<tr><th>CBI Taxonomy</th><th>EU Taxonomy</th><th>Colombian</th></tr>
<tr><td colspan="3">TIER 1</td></tr>
<tr><td>Climate Bonds Standard Board</td><td>European Commission</td><td>Supervisory Committee</td></tr>
<tr><td>NGOs and Asset Managers</td><td colspan="2">Governmental institutions</td></tr>
<tr><td colspan="3">TIER 2</td></tr>
<tr><td>Climate Science Reference Group</td><td rowspan="2">TEG (Technical Expert Group)
32 members from organizations acting as independent experts.
Two individual members with proven expertise acting independently.
One individual representing a common interes.</td><td rowspan="2">External members from organizations acting as independent experts and coordinators</td></tr>
<tr><td>Climate Bonds Secretariat</td></tr>
<tr><td colspan="3">TIER 3</td></tr>
<tr><td colspan="3">Technical experts by sectors</td></tr>
<tr><td>TWG (Technical Working Groups)</td><td rowspan="2">Observers</td><td rowspan="2">Technical Experts</td></tr>
<tr><td>IWG (Industry Working Groups)</td></tr>
</table>

Source: Climate Bonds Initiative

The approaches used in other international taxonomies are described in detail in **"Annex 2: International practices".**

8.1 Stakeholder mapping and governance in Chile

The development of the taxonomy should include a wide variety of stakeholders such as public sector entities, private sector companies, individual technical experts, NGOs, academ-

ics, financial institutions, investors, banks, and industry associations. The responsibilities and tasks of various entities chosen for the development of the taxonomy depend on the governance structure chosen.

For Chile, it is important to consider existing climate governance structures in the country such as *La Mesa*, the Inter-ministerial technical team on Climate Change (ETICC), the COP25 scientific committee and the climate action high level committee, among others, when developing a governance structure for the development of a national taxonomy.

The taxonomy will be used to implement measures to grow green finance in order to comply with climate goals and increase competitiveness due to new economic demands worldwide. This requires proper public sector governance and a supervisory structure to manage the opportunity, to regulate and to grow the market in the future. The project lead or the main coordinator could be chosen by the Supervisory Committee through a vote. The selection of the coordinator should consider availability of resources, decision-making capacity, commitment and willingness to develop a taxonomy.

8.1.1 Tier-1: Taxonomy owners

The entities in Tier-1 are the owners of the taxonomy and could form **the main committee** involved in the supervision of the taxonomy development. The main tasks of this group will be **to establish the objectives, ensure alignment with the national goals and policies, review, approve and publish the taxonomy and oversee the entire development process.**

The stakeholders should include the public sector institutions representing the financial sector and involved in the monitoring and verification of investment flows and planning of budgets, such as the country's Ministry of Finance and the financial regulators. Additionally, the Ministry of Environment should be included. Finally, ministries or associations representing the industrial sectors should also be considered. The leadership role can be chosen by the members. An example of potential entities that can be part of Tier-1 group for the development of the Chilean taxonomy is shown below:

Figure 17: Potential stakeholders of the Tier-1 group for the development of a taxonomy in Chile

Source: Climate Bonds Initiative

8.1.2 Tier 2: Project coordinators and advisors

The entities in Tier-2 will oversee the **project execution and coordination** of all the tasks involved in the development of the taxonomy. The members of this group will act as a link between the technical groups and the supervisory committee and will regularly update the main committee on the progress of the taxonomy.

The stakeholders could include certain members from Tier-1 and external consultants who could be hired for project coordination and elaboration of the taxonomy. The stakeholders would be responsible for all the administrative work, coordination with technical experts, consolidating the technical comments and **creating the first draft of the taxonomy document** that should be presented to the main committee for review and approval. An example of potential entities that can be part of the Tier-2 group for the development of the Chilean taxonomy is shown below:

Figure 18: Potential stakeholders of the Tier-2 group for the development of a taxonomy in Chile

Source: Climate Bonds Initiative

8.1.3 Tier-3: Technical and industry reviewers

The members of this group are mainly responsible for the **technical discussions, review of the taxonomy draft, providing inputs for the addition or modification of activities and defining the screening criteria**.

The stakeholders of this group include the lead advisers, technical expert groups, industry review groups, sector experts and consultants who will be engaged by the project coordinators in detailed technical discussions to elaborate the taxonomy-eligible activities and criteria for various sectors.

The following considerations are important for the selection of technical experts and consultants involved in the development of eligibility criteria:

- **Knowledge of climate science.**
- **Knowledge of state-of-the-art science and technologies of respective sectors.**
- **Understanding of the national and international environmental standards and benchmarks for respective sectors and industries.**
- **Easy to approach and availability to participate in technical discussions.**

An example of potential entities that can be part of the Tier-3 group for the development of the Chilean taxonomy is shown below:

Figure 19: Potential stakeholders of the Tier-3 group for the development of a taxonomy in Chile

Source: Climate Bonds Initiative

9. The way forward

The development of Chile's national taxonomy would help to establish a green investment roadmap and act as a **blueprint** for the country's transition towards a **green economy**. A government-endorsed taxonomy would serve as guidance to all players in the financial sector, including public, private, and development banks. This will help **increase capital flows** into green projects and may also leverage the flow of **international capital**. The taxonomy could also guide the public entities in informed decision making in the future. Developing a national taxonomy **aligned with the international taxonomies** is essential for Chile's international trade, especially with the **EU and China**, who have already established taxonomies. A green taxonomy will also act as a **transition tool** and a reference for carbon-intensive industries, providing clear signals to productive sectors on the opportunities they may find in the development of projects aligned with the climate goal of carbon neutrality. Examples of activities under the transition framework proposed by CBI[10] are shown in **"Annex 5: Examples of activities under the transition framework"**.

In CBI's view, Chile should begin work on the taxonomy by referring to the **EU Taxonomy** as **a starting point or** can also refer to the **Common Ground Taxonomy** that is currently under development by the IPSF, when released. The work should begin by selecting the **fast-track activities** (activities that can be adopted/adapted from an international taxonomy without the need for a detailed technical review) **across all the sectors simultaneously** and subsequently develop criteria for other activities. The taxonomy's activities should be mapped with the **SII system** in Chile and connect to the MRV (monitoring, tracking and verification system for climate change-related investments), which will help harmonize the names, classifications, and tracking of capital flows and GHG emissions.

For sectors and activities unique to Chile or for those where there are no international references in other taxonomies (e.g., Mining and aviation), it will be beneficial to collaborate with international groups such as the IPSF. It is recommended that the activities also comply with **minimum social safeguards** and standards.

The taxonomy development should include various stakeholders such as public and private sector entities, individual technical experts, NGOs, academics, financial institutions, investors, and industry associations. The stakeholders involved in the development of the taxonomy can be mapped into three levels of governance:

10 Financing credible transitions, (CBI, 2020f)

- Tier-1: Taxonomy owners (e.g., Ministry of Finance, Ministry of Environment, Central Bank and financial regulators)
- Tier-2: Coordinators and advisors (e.g., COP25 Scientific Committee, IDB, CBI)
- Tier-3: Technical and Industry experts (e.g., Ministry of Science and Innovation, (CR)2, Centro UC, ACERA, ASIPLA, ACAFi, Bolsa de Santiago, AFP Chile)

The **screening criteria should be based on scientific information**, binary and easily quantifiable, and periodically revised, especially for transition activities.

This Taxonomy Roadmap for Chile has conducted an initial gap assessment for Construction, Energy, Transport, and Mining which assessed key policies and recommended certain activities and approaches for the selection of screening criteria. The same approach should be used as a guide for the initial gap assessment of all the sectors during the taxonomy development.

The **mining sector is an opportunity for Chile to take leadership** as there are no references available in the market to date. The work can be done in collaboration with other countries and groups. The activities should be **prioritized based on their relevance to the economy and the importance of the minerals for a transition**, etc. (e.g., lithium, copper). For other transition sectors, Chile can reference CBI's Transition principles mentioned earlier in Figure 2: Guiding principles for the development of taxonomies with transition pathways.

In addition to developing the mitigation criteria for activities across various sectors, as shown above, the taxonomy should include criteria for activities related to **adaptation and resilience** to the effects of climate change. There are also a number of sectors which would benefit from a combined mitigation-adaptation approach (e.g., water). Chile can use CBI's Adaptation and Resilience principles as a reference, particularly for infrastructure assets in the planning stage. This is critical for managing the country's vulnerability to the effects of climate change, while also mitigating risks in investment portfolios through decarbonisation.

Taxonomy Roadmap for Chile: Recommendations
Recommendation 1: Pursue Pathway 2 of starting with an international taxonomy (e.g., EU Taxonomy or Common Ground Taxonomy as mentioned to be developed by the IPSF) as a reference and adapting the criteria to suit the local needs wherever necessary.
Recommendation 2: The work of the taxonomy development in Chile should start by assessing existing local and international taxonomies.
Recommendation 3: Start the process by selecting fast-track activities (the activities which can be directly adopted/adapted to Chile from international taxonomies without any modification, this will make the process both easier and faster
Recommendation 4: For activities unique to Chile, utilise alliances and collaborations with international groups such as the IPSF or adaptation and resilience dialogues could be beneficial (e.g., mining and aviation)
Recommendation 5: Align objectives with the broad goals of other international taxonomies to ensure harmonization – i.e., climate change mitigation, water conservation, pollution prevention and protection of ecosystems.
Recommendation 6: For the social aspects, Chile can use the national laws and other social safeguards such as the OECD Guidelines on Multinational Enterprises, UN Guiding Principles on Business and Human Rights with reference to ILO Core Labour Conventions, etc. A further deep dive into other social objectives for the Taxonomy could be developed over time.
Recommendation 7: Energy, Transport, Construction, and Industry sectors should be prioritised if the taxonomy is developed in stages.
Recommendation 8: Chile should start with fast-track activities (i.e., activities for which the screening criteria can be easily adopted/adapted from an international taxonomy without the need for a detailed technical review) across all the sectors simultaneously. This will save time and resources and help address activities that can be considered as “quick wins” across the sectors.
Recommendation 9: It is also recommended to map the selected activities against a classification code used in the country such as the CIIU (as noted earlier, the EU Taxonomy uses NACE codes for its classification system).
Recommendation 10: Focus initially on applying a national taxonomy to green debt instruments (bonds, loans asset-backed securities (ABS), and other debt structured products).

About Climate Bonds Initiative

The Climate Bonds Initiative (CBI) is an investor-focused not-for-profit organization whose goal is to promote large-scale investments through green bonds and other debt instruments to accelerate a global transition to a low-carbon and climate-resilient economy. CBI is an international organisation working solely to mobilise the largest capital market of all, the $100 trillion bond market, for climate change solutions.

CBI undertakes advocacy and outreach to inform and stimulate the market, provides policy models and government advice, market data and analysis, and administers an international Standard & Certification Scheme for best practice in green bonds issuance.

About the Climate Bonds Standard: It is an overarching science-based, multi-sector standard that allows investors and intermediaries to easily assess the climate credentials and environmental integrity of bonds and other green debt products.

About the Climate Bonds Taxonomy: The Taxonomy is a guide to climate aligned assets and projects. It is a tool for issuers, investors, governments, and municipalities to help identify assets and projects that are aligned with a 2-degree trajectory and will deliver a low carbon economy. The Taxonomy is grounded in the latest climate science and has been developed through an extensive multi-stakeholder approach, leveraging the work of Technical and Industry Working Groups. The Taxonomy aims to encourage and be an important resource for common green definitions across global markets, supporting the growth of a cohesive bond market.

Bibliography

Agencia de Sostenibilidad. *(2021). Agencia de Sostenibilidad. Retrieved from Agencia de Sostenibilidad*: https://www.registroenergetico.cl/#/

Banco Central de Chile. *(2021). Statistics Database. Retrieved from Banco Central*: https://si3.bcentral.cl/Siete/EN/Siete/Cuadro/CAP_BDP/MN_BDP42/BP6M_DE_PUB_PRV/BP6M_DE_PUB_PRV

Bank of International Settlements. *(2020). BIS Quarterly Review: International banking and financial market developments. BIS. Retrieved from* https://www.bis.org/publ/qtrpdf/r_qt2009.pdf

Behnke, D. P., Estévez, G. J., & Arias, I. A. *(2009). Las energías renovables no convencionales en el mercado Chileno. Santiago: Proyecto Energía Renovables No Convencionales (CNE/GTZ). Retrieved from* https://energia.gob.cl/sites/default/files/ernc_mercado_electrico_chileno_baja_resolucion.pdf

CAPE. *(2021). CAPE. Retrieved from CAPE*: https://cape.agenciase.org/

CBI. *(2020a). Comparison and Analysis of Consistency of Green Finance Standards between China and Europe. Unpublished.*

CBI. *(2020b). Governance. Retrieved from CBIs*: https://www.climatebonds.net/standard/governance

CBI. *(2020c). Taxonomy. Retrieved from CBI*: https://www.climatebonds.net/standard/taxonomy

CBI. *(2020d). Certification. Retrieved from CBI*: https://www.climatebonds.net/certification

CBI. *(2020e). Adaptation and Resilience. Retrieved from CBI*: https://www.climatebonds.net/adaptation-and-resilience

CBI. *(2020f). Financing Credible Transitions. CBI. Retrieved from* https://www.climatebonds.net/system/tdf/reports/cbi-fin-cred-transitions-092020-report-page.pdf?file=1&type=node&id=54300&force=0

CBI. *(2020g). China's Green Bond Issuance and Investment Opportunity Report. CBI.*

CBI. *(2020). Sustainable Debt Global State of the Market H1 2020. CBI.*

CMF. *(2019). CMF Chile. Retrieved from CMF*: http://www.cmfchile.cl/institucional/legislacion_normativa/normativa_tramite_ver_archivo.php?id=2019120239&seq=4

CMF. *(2020, September 10). Estrategia de la Comisión para el Mercado Financiero para enfrentar el Cambio Climático. Chile.*

Comisión Chilena del Cobre. *(2020). Mining in Chile. Retrieved from Ministerio de Minería*: https://www.cochilco.cl/SIAC/Paginas/English/Mining-in-Chile.aspx

Comisión de Hacienda. *(2020, March 10). Informe de la comisión de hacienda recaído en el proyecto de ley sobre eficiencía enegetica en sectores con consumo energético relevante.*

Consejo Minero. *(2021). Cifras actualizadas de la minería. Consejo Miero. Retrieved from* https://consejominero.cl/wp-content/uploads/2021/01/Cifras-Actualizadas-de-la-Mineria-2021-Enero.pdf

DNP. *(2017). Finanzas de clima 2017. DNP. Retrieved from* https://colaboracion.dnp.gov.co/CDT/Ambiente/Finanzas%20del%20Clima/Memorias%20Evento%20Finanzas%20del%20Clima%202017.pdf

Environment and Climate Change Canada. *(2019). Final Report of Sustainable Finance. Environment and Climate Change Canada.*

EU HLEG on Sustainable Finance. *(2018). Final Report. European Commission.*

EU TEG. *(2019). European Commission. Retrieved from European Commission*: https://ec.europa.eu/info/sites/info/files/business_economy_euro/events/documents/finance-events-190624-presentation-taxonomy_en.pdf

EU TEG on Sustainable Finance. *(2020). Taxonomy Report*: *Technical Annex. EU Technical Expert Group on Sustainable Finance.*

European Commission. *(2018). Rules of procedure of the Technical Expert Group on Sustainable Finance. European Commission.*

European Commission. *(2019, October 18). Frequently asked questions*: *IPSF. Retrieved from European Commission*: https://ec.europa.eu/commission/presscorner/detail/en/QANDA_19_6116

European Commission. *(2020). Frequently Asked Questions*: *Commission Technical Expert Group on Sustainable Finance. Retrieved from European Commission*: https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/sustainable-finance-teg-frequently-asked-questions_en.pdf

European Commission. *(2020). Overview of Sustainable Finance. Retrieved from European Commission*: https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/overview-sustainable-finance_en

European Commission. *(2020, June 18). Regulation (EU) 2020/852 of the European Parliament and the European Council of 18June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088. Retrieved from European Commission*: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0852&from=EN

European Commission. *(2020a). EU taxonomy for sustainable activities. Retrieved from European Commission*: https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en

Farfán, C. G. *(2021, January 26). Gianni López*: *"La ley de eficiencia energética provocará una transformación real hacia vehículos nuevos más limpios y eficientes". País Circular. Retrieved from* https://www.paiscircular.cl/industria/gianni-lopez-la-ley-de-eficiencia-energetica-provocara-una-transformacion-real-hacia-vehiculos-nuevos-mas-limpios-y-eficientes/

Government of Canada. *(2017). Pan-Canadian Framework on Clean Growth and Climate Change. Government of Canada.*

Government of Canada. *(2019). Canada's Changing Climate Report. Government of Canada. Retrieved from* https://changingclimate.ca/site/assets/uploads/sites/2/2020/06/CCCR_FULLREPORT-EN-FINAL.pdf

Government of Chile. *(2020). Chile's Nationally Determined Contribution (NDC). Government of Chile.*

IADB. *(2020, January 30). News. Retrieved from IADB*: https://www.iadb.org/en/news/idb-group-sets-climate-related-financing-annual-floor-30-until-2023

ICMA. *(2020). Sustainability-Linked Bond Principles. ICMA. Retrieved from* https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/June-2020/Sustainability-Linked-Bond-Principles-June-2020-171120.pdf

ICMA. *(2020). Sustainable Finance High Level Definitions. ICMA.*

IPCC. *(2018). Special Report*: *Global Warming of 1.5 °C. IPCC. Retrieved from* https://www.ipcc.ch/sr15/

IPSF secretariat. *(2020). International Platform on Sustainable Finance. IPSF Secretariat. Retrieved from* https://www.finances.gov.ma/Publication/dtfe/2020/

dt3%20international-platform-sustainable-finance-annual-report-2020_en%20(2).pdf

León, F. D. *(2021, 01 14). Energía con CBI. (CBI, Interviewer)*

Lovells, H. *(2020, March 2020). Italy: Green ABS: A New Opportunity. Mondaq. Retrieved from* https://www.mondaq.com/italy/securitization-structured-finance/900312/green-abs-a-new-opportunity

(2019). Manual de procedimientos calificación energética de viviendas en Chile. Ministerio de Vivienda y Urbanismo. Retrieved from https://www.calificacionenergetica.cl/media/Manual-CEV-2019-1.pdf

Min. Hacienda, CMF, Banco Central, SP. *(2019). Declaración conjunta sobre el Cambio Climático. Retrieved from* https://www.bcentral.cl/documents/33528/133208/Declaracion_18122019.pdf/5cccf908-53ce-a6dc-4e4c-05f40ca31cec?t=1576676228747

Ministerio de Energía. *(2017). Plan de Mitigación de Gases de Efecto Invernadero para el Sector Energía. Ministerio de Energía.*

Ministerio de Energía. *(2018). Plan de Adaptación al Cambio Climático para el sector Energía 2018-2023. Ministerio de Energía.*

Ministerio de Energía. *(2018). Ruta de la Luz. Retrieved from Ministerio de Energía:* https://energia.gob.cl/iniciativas/ruta-de-la-luz

Ministerio de Energía. *(2020). Carbon neutralidad en el sector de energía. Ministerio de Energía, Chile.*

Ministerio de Energía. *(2020). Carbono neutralidad en el sector de energía. Ministerio de Energía, Chile.*

Ministerio de Energía. *(2020). Contexto energetico edificaciones Chile.*

Ministerio de Energía. *(2020). Plataforma de Eletromovilidad. Retrieved from Ministerio de Energía:* https://energia.gob.cl/electromovilidad/reglamentacion/normativa-vehiculos-electricos

Ministerio de Energía. *(2020, March). Proyecto de Ley sobre Eficiencia Energética. Retrieved from Cámara de diputados y diputadas:* https://www.camara.cl/verDoc.aspx?prmID=191168&prmTipo=DOCUMENTO_COMISION

Ministerio de Hacienda. *(2019). Acuerdo Verde. Ministerio de Hacienda, Gobierno de Chile.*

Ministerio de Hacienda. *(2019). Bonos Verdes 2019 Reporte de Asignación e Impacto Ambiental. Ministerio de Hacienda.*

Ministerio de Hacienda. *(2021). Caso de Estudio: Bonos Sociales & Verdes de la República de Chile Emisión 2021. Ministerio de Hacienda. Retrieved from* https://www.hacienda.cl/areas-de-trabajo/finanzas-internacionales/oficina-de-la-deuda-publica/bonos-sostenibles/bonos-verdes

Ministerio de Medio Ambiente. *(2020). Evolución normas de entrada en Chile. Santiago.*

Ministerio de Transportes y Telecomunicaciones. *(2020, July). Ministerio del Medioambiente. Retrieved from Ministerio del Medioambiente:* https://cambioclimatico.mma.gob.cl/wp-content/uploads/2020/07/NUMP-ELP.08.07.2020_SECTRA_MTT.pdf

Ministerio de Vivienda y Urbanismo. *(2016). Construcción Sustentable. Ministerio de Vivienda y Urbanismo. Retrieved from* https://csustentable.minvu.gob.cl/wp-content/uploads/2016/01/Folleto-CS.pdf

Ministerio de Vivienda y Urbanismo. *(2020). Propuesta de actualización (Reglamentación Térmica). Chile.*

Ministerio del Medio Ambiente. *(2014). Plan Nacional de Adaptación al Cambio Climático. Ministerio del Medio Ambiente.*

Ministerio del Medio Ambiente. *(2020). 4to Informe Bienal de actualización de Chile sobre Cambio Climático. Ministerio del Medio Ambiente. Retrieved from*

https://unfccc.int/sites/default/files/resource/Chile_4th%20BUR_2020.pdf

Ministry of Environment. *(2019). Ministerio del Medio Ambiente. Retrieved from MMA*: https://mma.gob.cl/wp-content/uploads/2019/07/Presentacion-Ley-Marco-CC.pdf

Ministry of Environment, Chile. *(2020). Plan para las comunas de Temuco y Padre las Casas. Retrieved from Ministerio del medio ambiente*: https://ppda.mma.gob.cl/araucania/pda-para-las-comunas-de-temuco-y-padre-las-casas/

Ministry of Finance. *(2020). Green growth opportunities for the decarbonization goal for Chile. Government of Chile.*

NGFS. *(2020). Overview of Environmental Risk Analysis by the Financial Sector. NGFS.*

OECD. *(2017). Investing in Climate, Investing in Growth. Paris: OECD Publishing. Retrieved from* https://www.oecd-ilibrary.org/economics/investing-in-climate-investing-in-growth_9789264273528-en

OECD. *(2020, October). Developing Sustainable Finance: A brief for policy makers. Retrieved from OECD Environment Directorate*: http://www.oecd.org/environment/cc/developing-sustainable-finance-definitions-and-taxonomies-brief-for-policy-makers.pdf

Payero, J. P. *(2021, January 22). Agencia de Sostenibilidad con CBI. (CBI, Interviewer)*

Servicio de Evaluación Ambiental. *(2020). Servicio de Evaluación Ambiental. Retrieved from Servicio de Evaluación Ambiental*: https://www.sea.gob.cl/evaluacion-de-impacto-ambiental/que-es-el-sistema-de-evaluacion-de-impacto-ambiental-seia

SFC. *(2020). Documento introductorio sobre la taxonomía de actividades verdes de Colombia para el objetivo ambiental de cambio climático. Unpublished.*

SFC. *(2020a). Taxonomía de actividades verdes para el objetivo ambiental de cambio climático. Bogotá: Unpublished.*

SFC Colombia. *(2019, March 08). Comunicados de Prensa. Retrieved from Superintendencia Financiera de Colombia*: https://www.superfinanciera.gov.co/jsp/10099920

Standards Council of Canada. *(2019, April 24). Notices of Intent. Retrieved from Standards Council of Canada*: https://www.scc.ca/en/standards/notices-of-intent/csa/sustainable-finance-defining-green-taxonomy-for-canada

Superintendencia de Pensiones. *(2020, November 24). Comunicados de prensa. Chile. Retrieved from* https://www.spensiones.cl/portal/institucional/594/articles-14248_recurso_1.pdf

UN News. *(2020, September 22). 'Enhance solidarity' to fight COVID-19, Chinese President urges, also pledges carbon neutrality by 2060. Retrieved from* https://news.un.org/en/story/2020/09/1073052

WMO. *(2019). The Global Climate in 2015-2019. World Meteorological Organization. Retrieved from* https://library.wmo.int/doc_num.php?explnum_id=9936

World Bank. *(2020, December 9). Press release. Retrieved from The World Bank*: https://www.worldbank.org/en/news/press-release/2020/12/09/world-bank-group-announces-ambitious-35-finance-target-to-support-countries-climate-action#:~:text=WASHINGTON%2C%20Dec%209%2C%202020%20%E2%80%94,over%20the%20next%20five%20years.&text=The%20co%2Db

World Economic Forum. *(2020). The Global Risks Report 2020. Retrieved from* http://www3.weforum.org/docs/WEF_Global_Risk_Report_2020.pdf

WRI. *(2020). NDCs. Retrieved from World Resources Institute*: https://www.wri.org/ndcs

Annex 1: Applications of a taxonomy

The detailed applications of a taxonomy for specific financial instruments are described below:

- Use of Proceeds - bonds and loans: Green bonds are regular bonds, but the proceeds are assigned only for projects with environmental benefits and those that contribute to climate change mitigation and adaptation. Taxonomies have been essential at providing definitions to label green bonds and loans. In 2019 approximately 3.5% of the bonds issued globally were green. However, the market has enormous potential for growth as the global bond market is more than a trillion dollars (Bank of International Settlements, 2020)
- Sustainability Linked Bonds and Loans (SBL or SLL): These are general debt instruments with a commitment of the borrower to sustainability-related activities. Taxonomies can also potentially be used for sustainability-linked bonds, especially for transition activities as they can be used to define and set measurable performance benchmarks and indicators which are based on scientific information. The key performance indicators (KPIs) can be set based on metrics and thresholds of a reference taxonomy (ICMA, 2020) (For example, the threshold for emissions from transport activities can be identical to the threshold in the EU Taxonomy). This practice is, however, not common currently for sustainability-linked bonds.
- Equity: When applying the EU Taxonomy to an equity portfolio, the regulation would create obligations for disclosure for equity and bond investment products marketed as being environmentally sustainable or having similar characteristics. Under current market practices, an equity portfolio (money invested in a company by purchasing shares of that company in the stock market) may be making a contribution to environmental objectives when its turnover in environmental-related activities corresponds to a minimum percentage of total turnover.
- Asset-Backed Securities (ABS): These are investment securities that consist of a pool of assets such as loans or leases. Taxonomies can be used for evaluation of the alignment of the assets and in disclosure. This will help assess the "green" collateral, use of proceeds and also to invest freed-up capital in green projects (Lovells, 2020). The EU, for example, requires equities, portfolio and securitisation funds to mandatorily disclose the proportion of underlying investments that are taxonomy-aligned, the environmental objectives to which the investments

contribute and the extent of the use of taxonomy in determining the sustainability of investments (European Commission, 2020a). The envisaged obligation in the Taxonomy regulation lies with the provider of the financial product within scope of the regulation. For example, an asset manager that creates a fund aggregating ABS, backed by financial assets such as green mortgages or forest bonds developed by an investment bank would have a taxonomy aligned fund. The fund is then sold as a green alternative investment fund to asset owners.

- Mortgage-backed security (MBS): These are bonds that are secured by cash flows from a bundle of home loans bought from the banks that underwrote them. Investors in MBS receive periodic payments like bond coupon payments. Fannie Mae is a government-sponsored enterprise that makes mortgages available to low- and moderate-income borrowers. It does not provide loans but backs or guarantees them in the secondary mortgage market. Taxonomies can be used for evaluation of the alignment of the assets and in disclosure.
- Other stock exchange instruments for financial activities, projects, or companies whose main investors are investment funds, can be also labeled as green. In Brazil, Certificates of Agribusiness Receivables (CRA) are securitizations which are backed by contracts created from agreements with rural producers (CRA) or real estate loans (CRI). In Mexico, Capital Development Certificates (CKD), are financial instruments traded in stock markets, used to finance activities, projects or businesses, whose main investors are investment funds, with a focus on infrastructure, energy, and real estate issues.
- Credit Cards and other products: The future voluntary Ecolabel for financial products as environmentally sustainable investments or having similar characteristics, currently under development, is expected to establish thresholds at the holding and/or portfolio level. The Ecolabel could be use in other financial instruments.
- Green Portfolios: The EU Taxonomy may be used on a voluntary basis by other financial actors, such as banks, for the purpose of project finance, or companies when issuing debt. The overall percentage of EU Taxonomy alignment will be determined by the portfolio asset value invested in EU Taxonomy-eligible activities. A portfolio must invest a minimum percentage of total assets in green or climate-related activities to obtain any of the existing green labels (e.g., French Label for the Energy and Ecological Transition, the LuxFLAG Environment, Green Bond or the LuxFLAG Climate Finance) in Europe. It is important to note that the EU Taxonomy regulation does not establish a standard or label, and hence there are no

minimum thresholds for the share of sustainable activities at company or at portfolio-level under the Taxonomy regulation.

- Subsidies and other financial incentives: Taxonomies could also potentially be used for development of policies to implement subsidies or other tax benefits (OECD, 2020) (IPSF secretariat, 2020).
- Risks Analysis and Stress test: Different central banks and regulators are currently working on financial risk models and stress test scenario analysis to incorporate and assess climate-related risks. To have reliable results, standardization is key not only across the country but also around the world for comparability. Taxonomies could provide this standardization.
- Monetary Policies: Central Banks are currently studying the climate-related issues in monetary policy. These issues are also relevant to mitigate financial exposure to climate-related risks on their balance sheets. Taxonomies could be used for selectively buying some bonds/loans.

Annex 2: International practices

European Union

Background:

To meet the objectives of the European Green Deal and the climate commitments of the EU, the European Commission established a High-level Expert Group (HLEG) on Sustainable Finance in 2016. The HLEG published several key recommendations (EU HLEG on Sustainable Finance, 2018) including the development of a Taxonomy to define investment areas, provide clarity to investors and bring greater transparency and focus on ESG factors in investment decisions. The need for a taxonomy was also justified based on the identification of gaps such as the financial deficit required for the transition to a low-carbon economy, lack of common understanding of activities that contribute substantially to the objectives, and the use of multiple taxonomies and standards by financial institutions leading to a cumbersome process for evaluation of investments (European Commission, 2020). The following figure clarifies the scope of the EU Taxonomy:

Figure 20: Definition of the EU Taxonomy

IS	IS NOT
A list of economic activities and relevant criteria.	A rating of good or bad companies.
Flexible to adapt to different investment styles and strategies.	A mandatory list to invest in.
Based on latest scientific and industry experience.	Making a judgement on the financial performance of an investment - only the environmental performance.
Dynamic, responding to changes in technology, science, new activities and data.	Inflexible or static.

Source: EU TEG, 2019

In 2018, the HLEG published their final report with the following key recommendations (EU HLEG on Sustainable Finance, 2018):

- Establish and maintain a common sustainability taxonomy at the EU level.
- Clarify investor duties to better embrace long-term horizon and sustainability preferences.
- Upgrade disclosure rules to make sustainability risks fully transparent, starting with climate change.

- Key elements of a retail strategy on sustainable finance: investment advice, ecolabel, and SRI minimum standards.
- Develop and implement official European sustainability standards and labels, starting with green bonds.
- Establish a 'Sustainable Infrastructure Europe[11].
- Governance and Leadership.
- Include sustainability in the supervisory mandate of the European Supervisory Agencies and extend the horizon of risk monitoring.

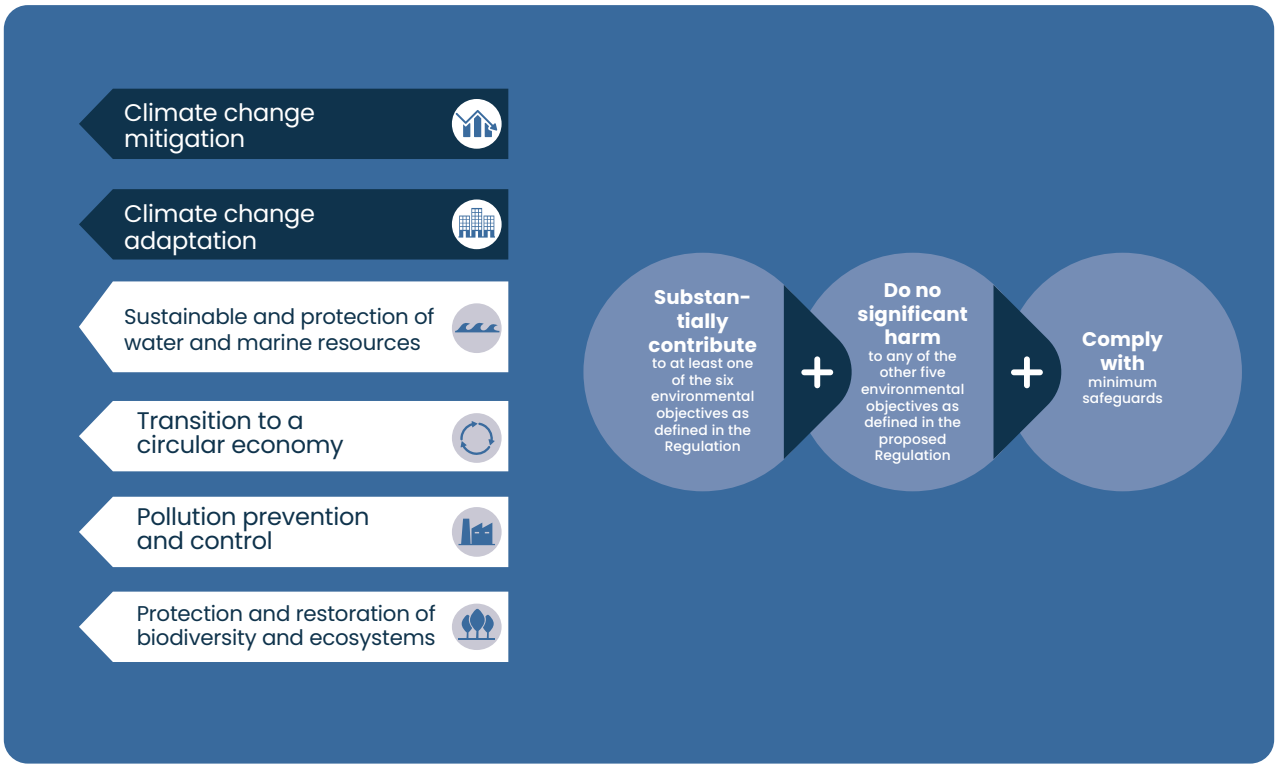
The Taxonomy Regulation established in 2019 acts as a basis for the creation of a taxonomy. The regulation laid out the environmental objectives, goals, and legal framework for the definition of the taxonomy. The work on the EU Taxonomy started in 2018 and was published in May 2020.

The regulation also indicates that the list of activities and their technical screening criteria will be established through delegated acts ((European Commission, 2020a). A Technical Expert Group (TEG) was formed to elaborate the list of eligible activities and screening criteria for the objectives. The TEG consisted of 32 organisations and individual members.

The following six objectives were chosen for the EU Taxonomy:

11 This would be an overarching organisation designed to support the development of sustainable infrastructure projects for the EU member states.

Figure 21: Process for the selection of activities

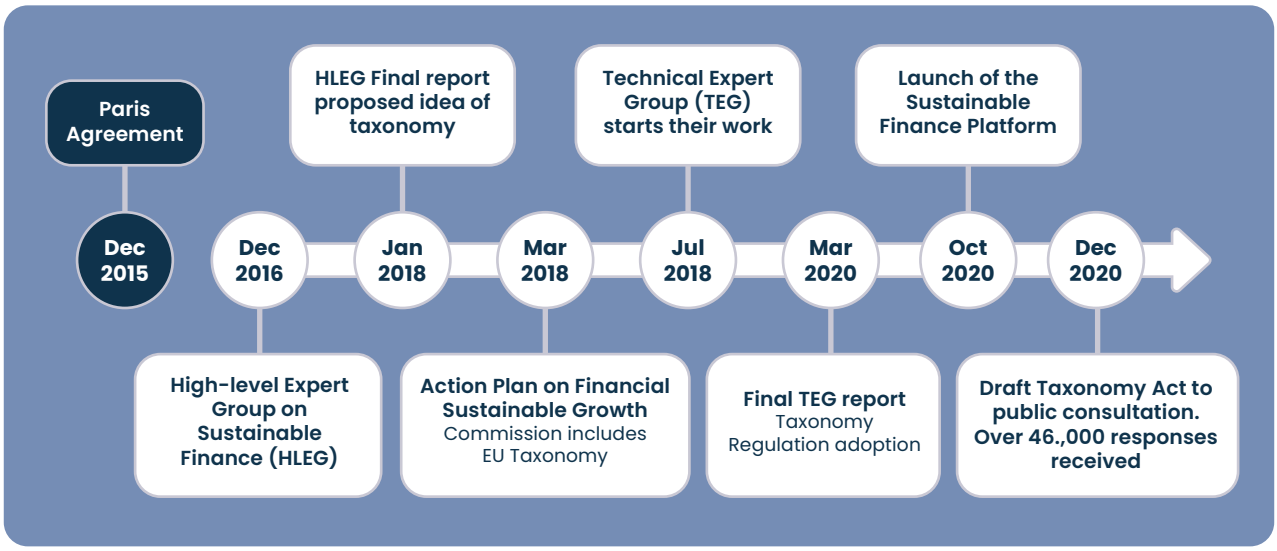


Source: EU TEG on Sustainable Finance, 2020

Based on the main objectives of climate change mitigation and adaptation, all the activities across the sectors were assigned screening criteria that includes metrics (e.g., g CO_2/p-km; g CO_2/kWh), automatic eligibility with additional safeguards or with additional requirements such as life cycle analysis, labels and standards. The activities are also required to meet the Do No Significant Harm (DNSH) criteria for water, circular economy, pollution, and ecosystems, which are based on the other environmental objectives of the EU Taxonomy.

The screening criteria for the activities are aligned with the EU's goal of limiting global warming rise to less than 1.5°C.

Figure 22: Timeline for the EU Taxonomy



Illustrated by Climate Bonds Initiative based on the primary information in the TEG documents

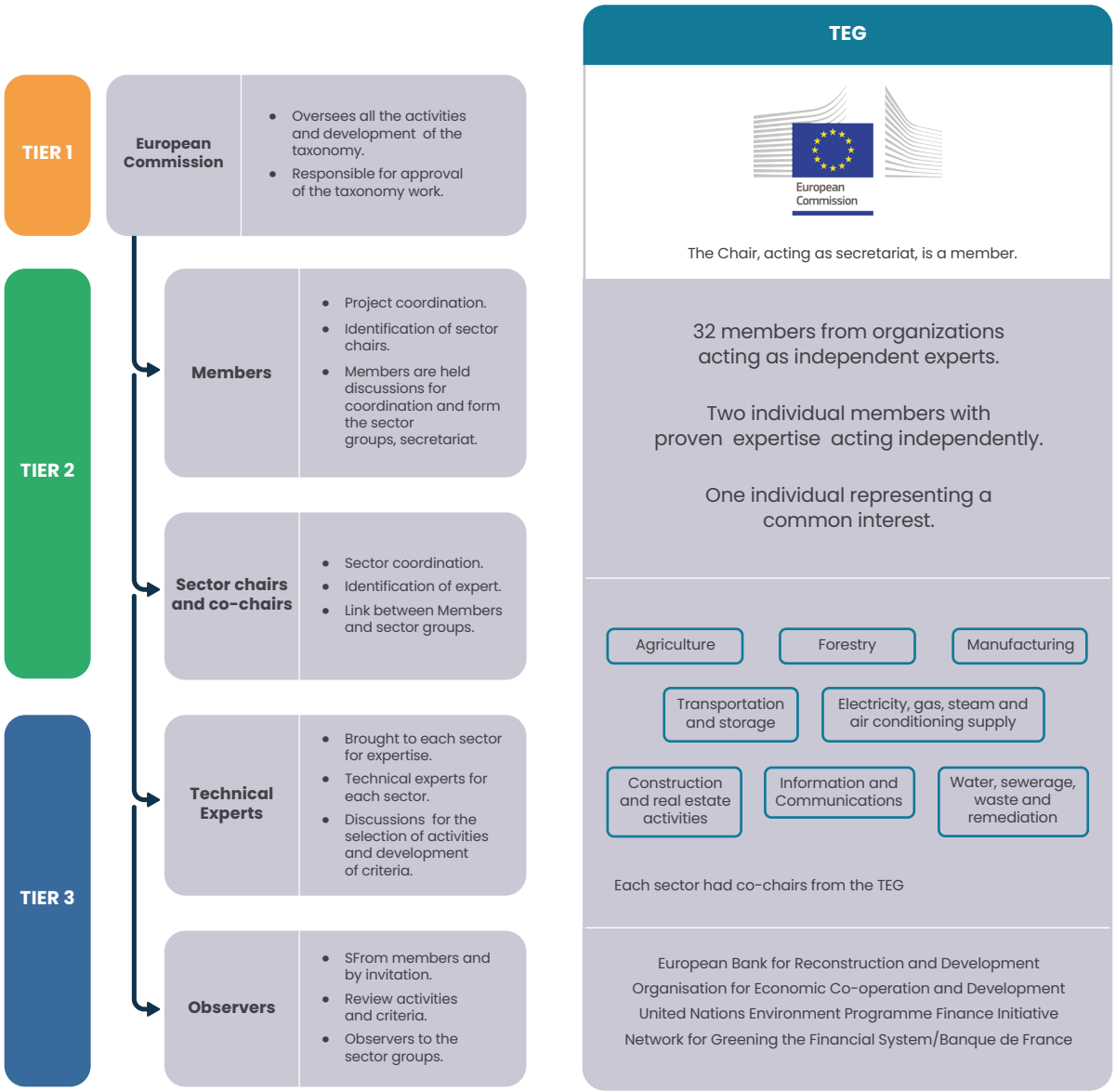
Governance:

The key stakeholders involved in the development of the EU Taxonomy were:

- **32 organizations** including companies, sector associations, NGOs, trade unions, universities, and research institutes (Type C members).
- **Two individuals** appointed in their personal capacity, i.e., experts with proven knowledge and experience in their areas of expertise, acting independently and in the public interest (Type A members).
- **One individual** appointed to represent a common interest shared by stakeholders in a particular policy area (Type B member) (European Commission, 2020).

The overall governance structure of the EU Taxonomy is shown below:

Figure 23: Governance structure for the development of the EU Taxonomy



Illustrated by Climate Bonds Initiative based on the primary information in the TEG documents

The members of the TEG were specific individuals from the chosen organisations and not the organisations themselves. This helped in ensuring continuity during the process of taxonomy development. The TEG was chaired by a representative of the Directorate-General for Financial Stability, Financial Services and Capital Markets Union (DG FISMA) and a representative from each of the Directorate-General for the Environment (DG ENV) and the Directorate-General for Climate Action (DG CLIMA) served as the Vice-chairs (European Commission, 2018). The DG FISMA, DG ENV and DG CLIMA are the Directorate Generals of the financial markets, climate and environmental departments, respectively, of the European Commission. A representative from the Principles of Responsible

Investment (PRI) served as a rapporteur for the Taxonomy sub-group of the TEG. The co-chairs were chosen amongst the members who internally also brought in additional help from experts within their organisations. Such additional invited experts, representatives from the organisations and observers participated in the technical discussions. The voting rights, however, were limited to the appointed members of the TEG and not to additional representatives or observers. The Co-chairs were also responsible for drafting the chapters which were submitted for review to members of the sub-groups. The Secretariat appointed by European Commission was in charge of setting and managing the agenda in collaboration with the Chairs for the technical discussions and assisted the groups with administrative processes.

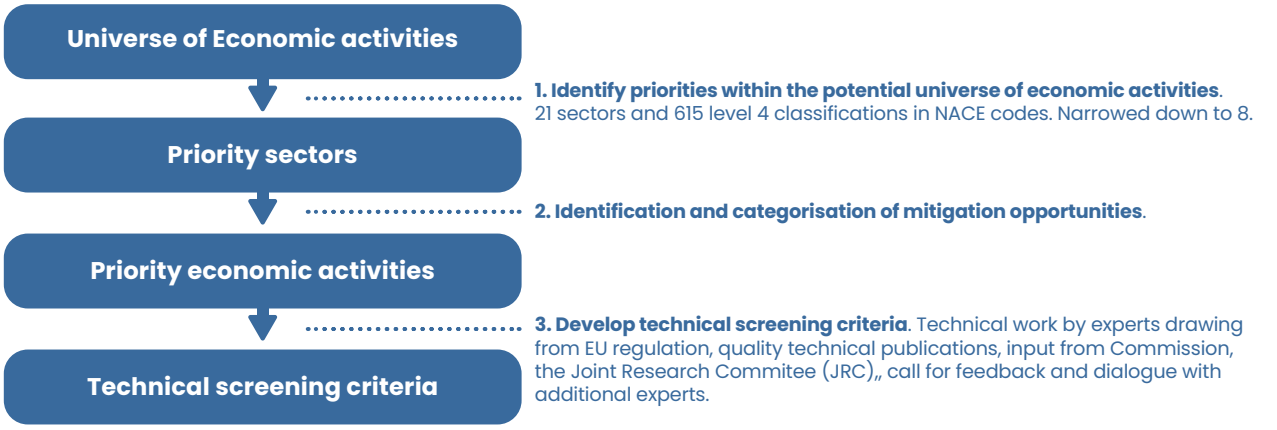
Objectives:

The objectives of the EU Taxonomy were recommended based on the policy goals and priorities of the EU. The European Green Deal and the Paris Agreement goals clearly establish the importance of strengthening the EU's response to climate change. Additionally, the EU has established policies and goals for sustainable use and production of water resources, circular economy, pollution prevention and biodiversity protection. These have been incorporated into the EU Taxonomy regulation, which also recognizes the importance of the EU's transition to a climate-neutral, climate-resilient, resource-efficient and circular economy (European Commission, 2020).

Classification and criteria:

The criteria and draft proposed by the TEG were also subjected to a public consultation process and received inputs from various stakeholders. The current EU Taxonomy covers sectors responsible for 93,5 % of GHG emissions in the EU and work is pending for the remaining sectors and activities. The activities that substantially contribute to climate change mitigation through their own performance or an enabling activity that helps in the mitigation of another economic activity were chosen. The adaptation portion of the EU Taxonomy covers 68 activities that were chosen based on the adaptation of an activity to all climate risks or an enabling activity that reduces material and physical climate risks in other economic activities. The NACE codes were used as a framework to classify and map the activities (EU TEG on Sustainable Finance, 2020). The workflow involved in the selection and prioritisation of sectors, activities and the elaboration of screening criteria is shown below:

Figure 24: Process of selection of sectors, activities, and screening criteria



Source: EU TEG on Sustainable Finance, 2020

The following sectors are covered in the EU Taxonomy:

- Agriculture
- Construction and real estate activities
- Electricity, gas, steam and air conditioning supply
- Forestry
- Manufacturing
- Transportation and storage
- Information and communications
- Water, sewerage, waste and remediation

For the next iteration of the Taxonomy, the TEG recommended evaluating certain high-emission activities which are not covered in the current version such as:

- Manufacturing – Mining, glass manufacturing, paper and pulp, textiles, etc.
- Transport – Maritime shipping, aviation, etc.

The Taxonomy also requires minimum safeguards in alignment with the OECD and UN guidelines on business and human rights, eight fundamental ILO conventions and the international bill of human rights (EU TEG on Sustainable Finance, 2020).

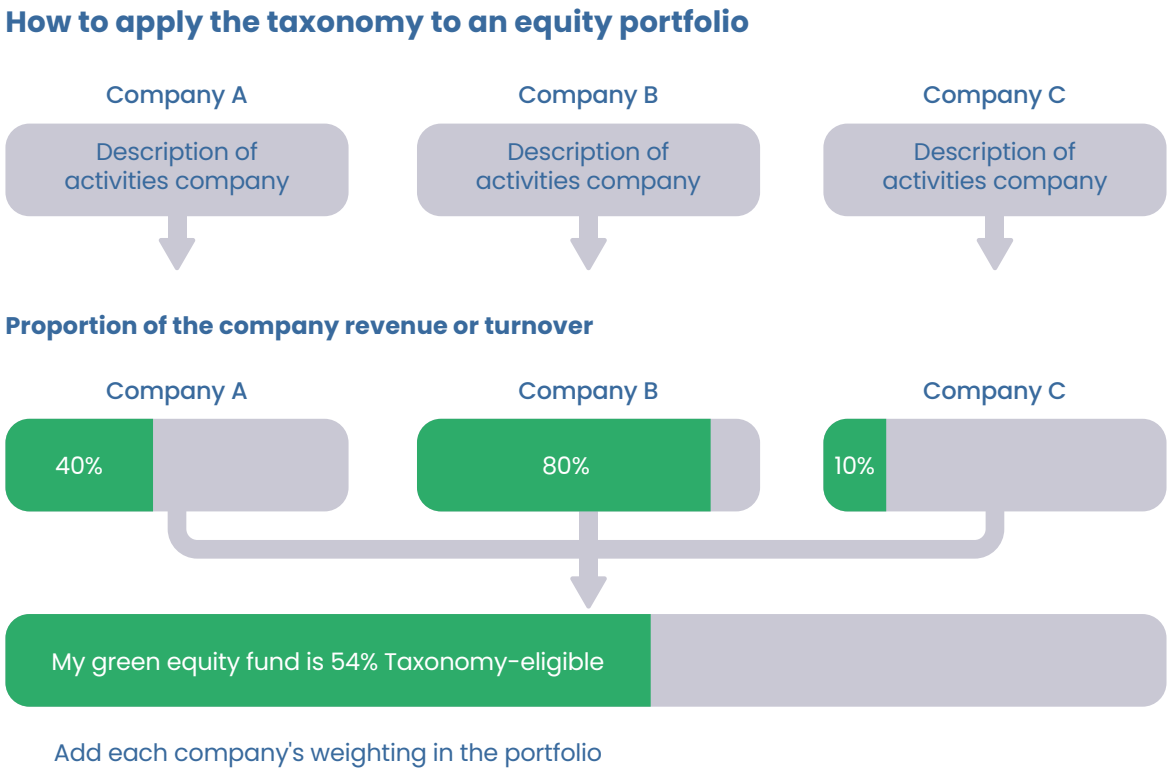
Application and use:

The EU Taxonomy is applicable to all financial entities and large companies in the EU. The criteria for activities that contribute substantially to mitigation and adaptation shall be adopted by 2021 by all the financial market entities. The companies are required to ensure the required disclosure by 2022. The disclosure will be part of the non-financial statements of the companies and shall include:

- The proportion of turnover aligned with the EU Taxonomy; and
- CAPEX and, if relevant, OPEX aligned with the EU Taxonomy (EU TEG on Sustainable Finance, 2020).

An example of the application of the EU Taxonomy to determine the alignment of equity portfolios for asset managers, insurance and pension funds is shown below:

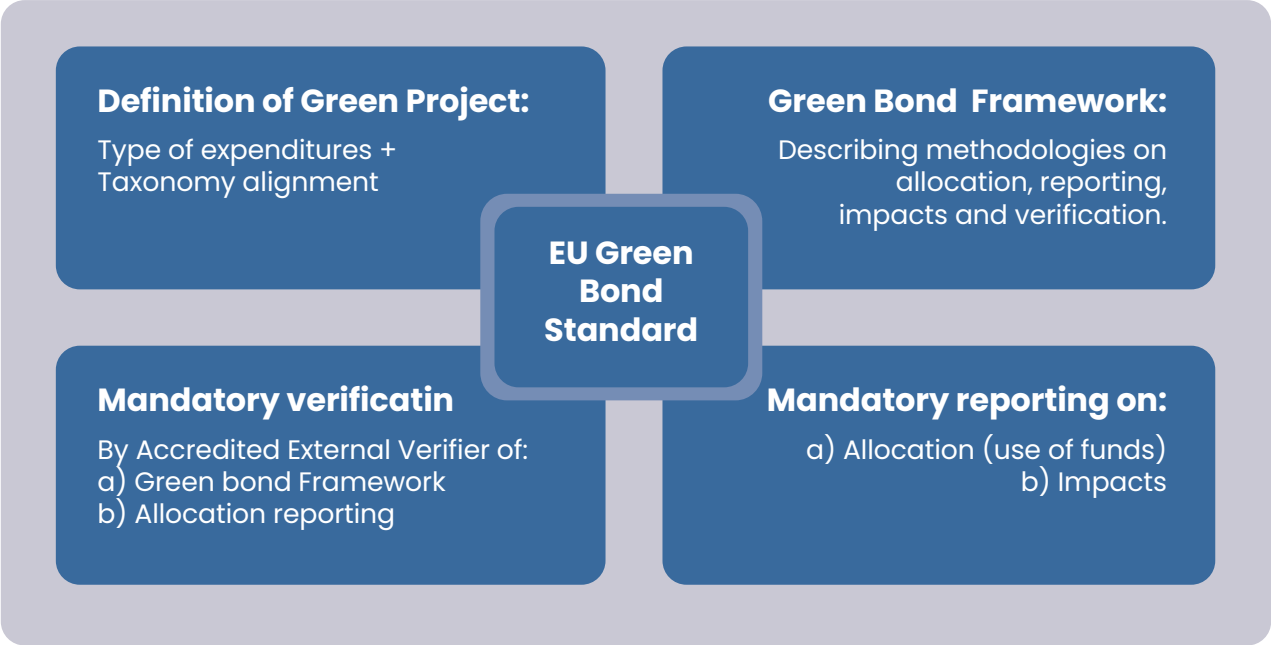
Figure 25: Example of application of the EU Taxonomy (Equity)



Source: EU TEG on Sustainable Finance, 2020

The European Commission is also working on establishing an EU Green Bond Standard based on the recommendations of the TEG that will improve transparency and provide clarity to the market to increase investments in EU Green Bonds. This is expected to be a voluntary standard and the final recommendations are yet to be announced.

Figure 26: Proposed EU Green Bond Standard under the EU Taxonomy



Source: EU TEG on Sustainable Finance, 2020

International Platform on Sustainable Finance (IPSF):

In October 2019, the European Commission launched the International Platform on Sustainable Finance (IPSF) together with Canada, China, Chile, India, Kenya and Morocco, with the objective of helping in the coordination of initiatives for capital markets (such as taxonomies, disclosures, standards and labels) that are important for private investors globally (European Commission, 2019). Other countries have since joined and the IPSF now has 15 members who in aggregate represent 55% of global GHG emissions, 50% of global GDP and 50% of the world's population (European Commission, 2019). The IPSF includes nine observers: The Coalition of Finance Ministers for Climate Action, the European Bank for Reconstruction and Development, the European Investment Bank, the International Organisation of Securities Commissions, the Network for Greening the Financial System, the Organisation for Economic Co-operation and Development, and the United Nations Environment Programme - Finance Initiative.

The IPSF acts as a forum for public entities to collaborate and exchange information about sustainable finance initiatives and policies (IPSF secretariat, 2020).

Similarly, the Common Ground is being developed by the IPSF and co-chaired by China and the EU. In it, common themes among existing taxonomies are identified, such as the relationship between economic activities and environmental objectives. This group is developing standards and labels for sustainable

financial products and improving climate-related disclosure.

The IPSF's work is currently underway, and members were invited to participate through an open call. Only one member from an institution is allowed to participate and Chile is represented by the Ministry of Finance. The IPSF is organised into four principle working groups:

- Usability group
- Brown taxonomy working group
- Social taxonomy-related working group, and
- Technical working group

China

Background:

China's financial markets have multiple regulations for the issuance of green bonds. For example, corporate bonds issued by companies should be approved by the National Development and Reform Commission, China (NDRC) and the People's Bank of China (PBOC) to receive a final approval from the China Securities Regulatory Commission (CSRC). Multiple regulations and approval mechanisms in the country have resulted in several types of classifications for economic activities. The PBOC published the *Green Bond Endorsed Project Catalogue* in 2015 which was fundamental for funnelling investments into green activities and for the transformation of various industries. The NDRC also published guidelines for the issuance of green bonds in 2015. Thus, China became one of the first countries to establish a national classification standard (CBI, 2020a).

The Green Bond Endorsed Projects Catalogue was revised in 2019 (also known as the *Industry Catalogue*) to clearly define the green industries. In 2020, a revised draft was published (also known as the Project Catalogue) with an expanded scope of green activities and services.

In June 2020, China announced that the *Projects Catalogue* and the *Industry Catalogue* are now combined in a single Green Bond Endorsed Projects Catalogue referenced as the **China Green Taxonomy**. This document excludes fossil fuels and adds hydrogen, sustainable agriculture, green consumer finance and a host of other useful sectors like green services and manufacturing. The removal of coal brings China into closer alignment with the EU Taxonomy, improving the prospect of taxonomy harmonization.

Objectives:

The following are the environmental objectives of the ***China Green Taxonomy***:

- Make significant contributions to environmental improvement.
- Respond to the challenges of climate change.
- Achieve resource conservation and efficient utilization.

These objectives are comparable to those of the EU Taxonomy and focus on

the same. However, the **China Green Taxonomy** neither elaborates on how the activities contribute towards climate change mitigation or adaptation, nor defines an evaluation process. It also does not consider transversal relationships of the environmental objectives which might lead to conflicts when an activity significantly contributes to a particular objective but harms other objectives. However, the taxonomy requires the projects to comply with the regulations, national and industry standards which might reduce such risks.

Classification and criteria:

The current draft follows the classification system proposed in the *Green Industry Guidance Catalogue* - energy saving and environmental protection, clean production, clean energy, ecology and environment-related sector, green upgrade of infrastructure and green services (CBI, 2020a).

These are further sub-divided into several sub-sectors as shown in the following table:

Table 7: Sector and Sub-sector classification in the Green Bond Catalogue draft of 2020

	Sector	Sub-sector
1	Energy Saving and Environmental Protection Industry	1.1 Energy Efficiency Improvement
		1.2 Sustainable Buildings
		1.3 Pollution Prevention
		1.4 Water Saving and Non-conventional Water Resources
		1.5 Integrated Utilizations of Resources
		1.6 Green Transportation
2	Clean Production Industry	2.1 Pollution Prevention and Treatment
		2.2 Green Agriculture
		2.3 Integrated Utilizations of Resources
		2.4 Water Saving and Non-conventional Water Resources
3	Clean Energy Industry	3.1 Energy Efficiency Improvement
		3.2 Clean Energy
4	Ecology and Environment-related sector	4.1 Ecological Agriculture
		4.2 Ecological Protection and Construction
5	The Green Upgrade of Infrastructure	5.1 Energy Efficiency Improvement
		5.2 Sustainable Buildings
		5.3 Pollution Prevention
		5.4 Water Saving and Non-conventional Water Resources
		5.5 Green Transport
		5.6 Ecological Protection and Construction
6	Green Services	6.1 Consultancy
		6.2 Operation Management Service
		6.3 Audit, Inspection and Evaluation of Projects
		6.4 Monitoring and Detection
		6.5 Promotion and Certification of Technical Products

Source: Climate Bonds Initiative, 2020a

The most significant change in the current draft of 2020 is the exclusion of clean production and utilisation of fossil fuels, including the clean utilisation of coal. However, manufacturing, utilization and operation of nuclear power are still recognised as green economic activities in the draft of 2020.

While the current version has clearer definitions of eligible activities compared to the previous editions, it does not have specific screening criteria for the selection of activities. This might lead to exclusions of certain eligible projects due to misinterpretation.

Application and use:

The China Green Taxonomy is intended to be used across the economy for the definition of green industries and activities. The taxonomy shall be used by various entities and departments to develop regional plans and policies in addition to the support of the financial markets. The China Taxonomy that is currently a draft subject to revisions (CBI, 2020a) is focused on green bonds including, but not limited to: green financial bonds, green corporate bonds, green enterprise bonds, green debt financing tools and green asset-backed securities. The PBOC is responsible for the approval of green bonds and hence, ensures compliance with the taxonomy.

Climate Bonds Initiative

Background:

The Climate Bonds Standard and the Certification Scheme launched in 2010 helps debt markets by ensuring integrity of climate bonds, providing governments with an easy tool for climate-related investments and fostering growth and investor demand in related opportunities. The eligibility criteria part of the Standard is developed based on scientific information and is consistent with the 2°C limit of global warming as per the Paris Climate Agreement of 2015. The CBI Taxonomy is the only Standard that can certify bonds.

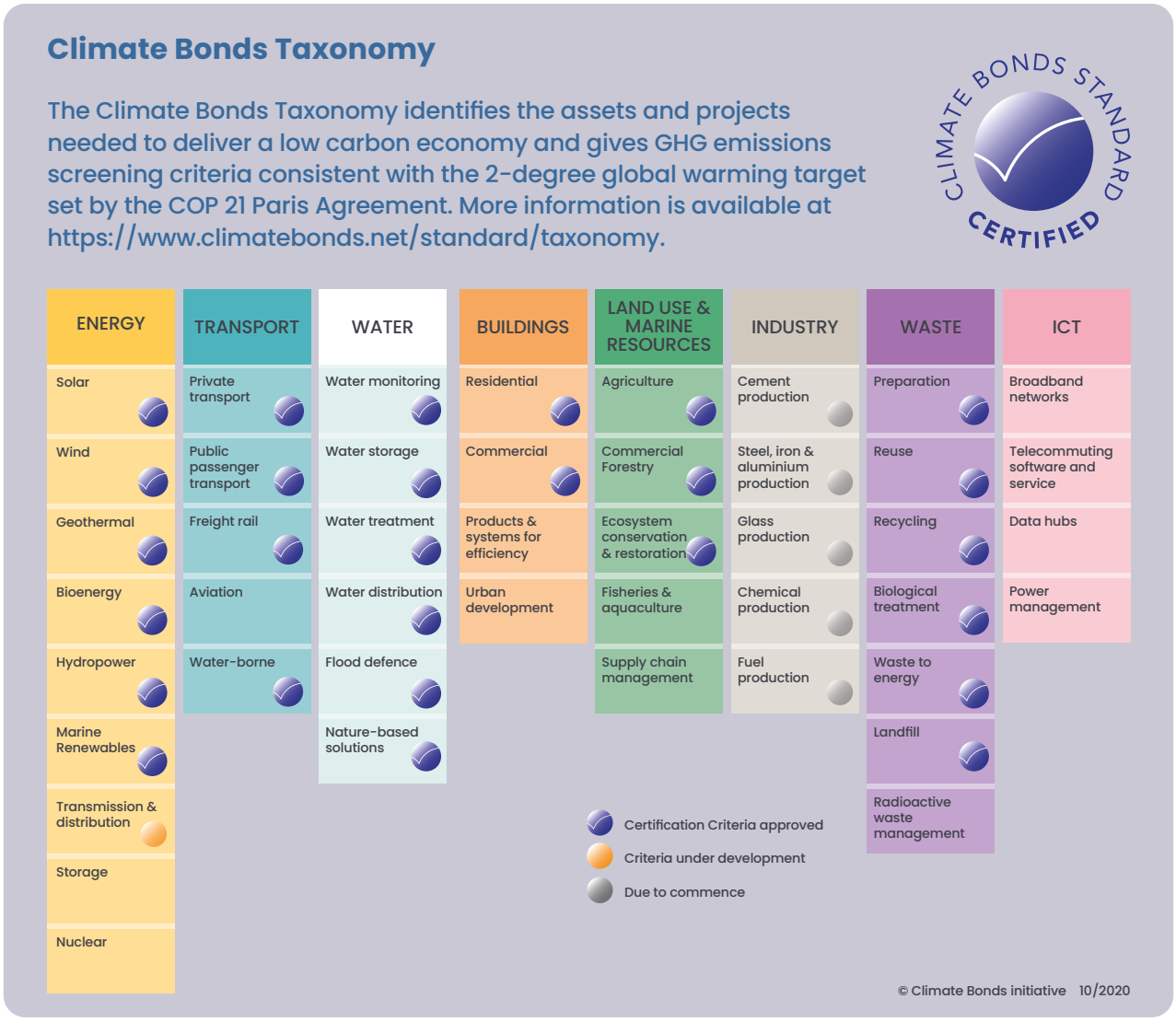
The CBI Taxonomy focusses on assets and projects that contribute towards:

- Climate change mitigation and limiting global warming to less than 2°C.
- Adaptation and resilience to climate change.

The Taxonomy covers activities across energy, transport, water, buildings, land use, marine resources and waste sectors. The sectors and activities are periodically updated.

An overview of the various sectors and activities covered by the CBI Taxonomy is shown below:

Figure 27: Sectors, assets and activities covered under the CBI Taxonomy



Source: Climate Bonds Initiative, 2020c

To easily identify the eligible activities in the CBI Taxonomy, a traffic light system-based convention is applied to all the assets as shown below:

Governance:

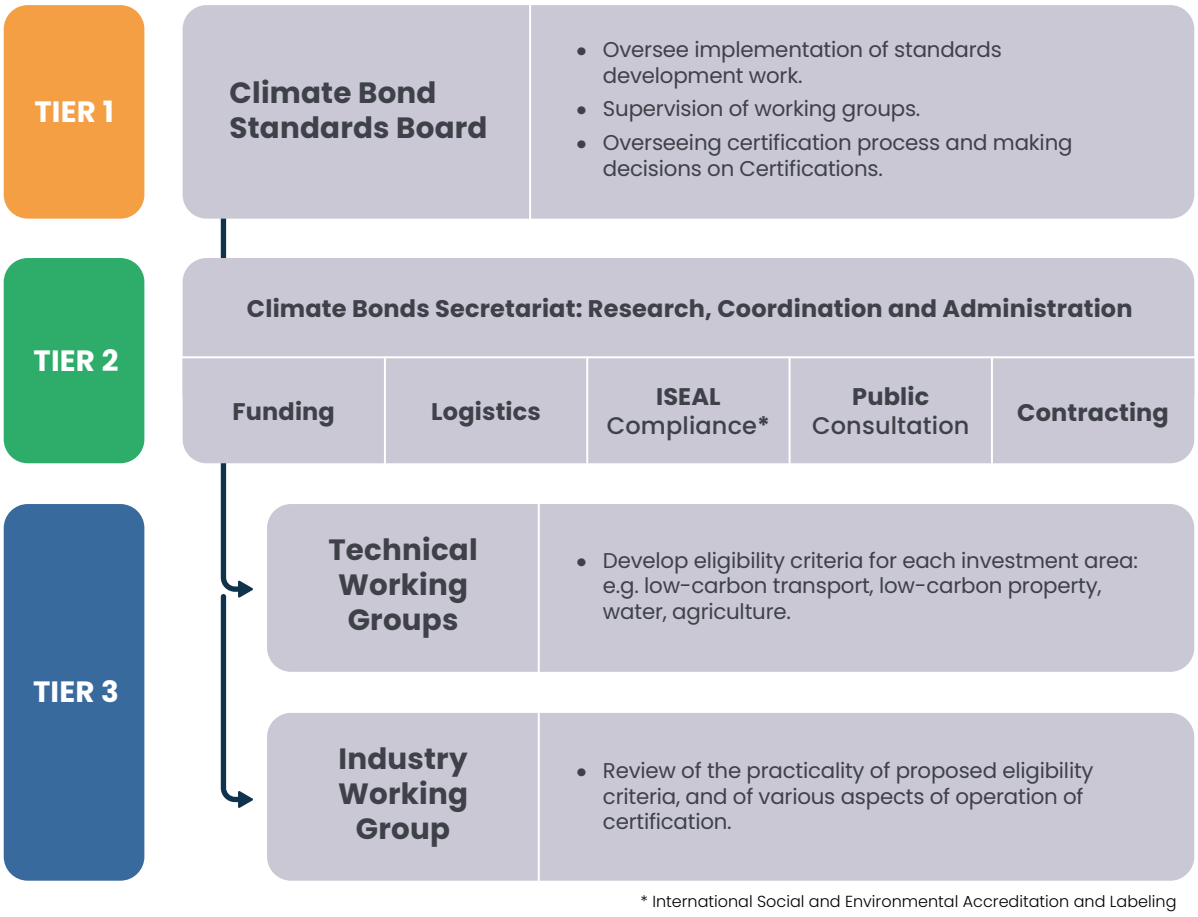
The governance structure and process involved in the development of the CBI Taxonomy is shown below:

Figure 28: Conventions used for the identification of asset or project eligibility

- Indicates asset or project is automatically compatible with a low carbon economy and does not have to comply with any requirements.
- Indicates asset or project can be compatible with a low carbon economy if it complies with set screening requirements.
- Indicates asset or project is not compatible with a low carbon economy.
- Indicates that this is an area where more work is required before we can classify these types of projects or assets.

Source: Climate Bonds Initiative, 2020b

Figure 29: Taxonomy governance structure of CBI Taxonomy



Source: Climate Bonds Initiative, 2020b

Standards Board:

The Standards Board oversees all activities of the taxonomy development process. All standards and documentation relating to guidance and strategic development of the taxonomy framework are reviewed by the Board and the decision-making is implemented through consensus. The Board is also responsible for supervision of the working groups. Each member of the Board while linked to prominent institutions, they are in the Board on a personal capacity.

Members of the Climate Bonds Standard Board are:

- California State Teachers Retirement System (CalSTRS).
- California State Treasurer Fiona Ma, CPA.
- Institutional Investors Group on Climate Change (IIGCC).
- The International Cooperative and Mutual Insurance Federation(ICIMF).
- Investor Group on Climate Change.
- Ceres Investor Network.

Climate Science Reference Group:

The Climate Science Reference Group advises the Technical Working Group for any particular sector on the scope of the activities, and reviews and provides inputs for science-based data to support the development of screening criteria and eligible activities. The group shall consist of academics and experts who are well-versed with climate science and can evaluate activities about their mitigation potential to comply with the 1.5°C trajectory.

The group can also recommend technical experts for the Technical Working Group.

Technical Working Group:

Technical Working Groups (TWG) consist of experts from academia, international agencies, think tanks, industry, and NGOs and are responsible for the development of eligibility criteria for each sector. There is one TWG per sector criteria.

The group is responsible for:

- Drafting a research brief that identifies the key issues and investment opportunities for the sector.
- Developing a discussion paper that reflects the technical working group process with proposed eligibility criteria for the key investment areas within the sector.
- Making final recommendations about eligibility criteria to the Standards Board.

Industry Working Group:

The Industry Working Groups provide sector-specific experience and review the practicability of proposed criteria for the activities in any particular sector.

They provide inputs to ensure that criteria are practical and conducive to rapid diffusion of the product. The group is made up of representation from each sector and will include individual companies as well as industry associations to receive inputs from various professionals in the sector.

The Standard consists of scientifically based criteria for various activities which are consistent with the 2°C limit of global warming as per the Paris Climate Agreement of 2015. It also incorporates the Green Bond Principles, Green Loan Principles, guidelines and rules of China, ASEAN, Japan, India and is aligned with the EU guidelines.

The Standard and screening criteria are part of the CBI Taxonomy and act as a screening tool and provide guidelines for investments related to climate change. The Taxonomy has been developed by involving various stakeholders including technical and industry experts through an extensive engagement process. It was first released in 2013 but is periodically updated (CBI, 2020d).

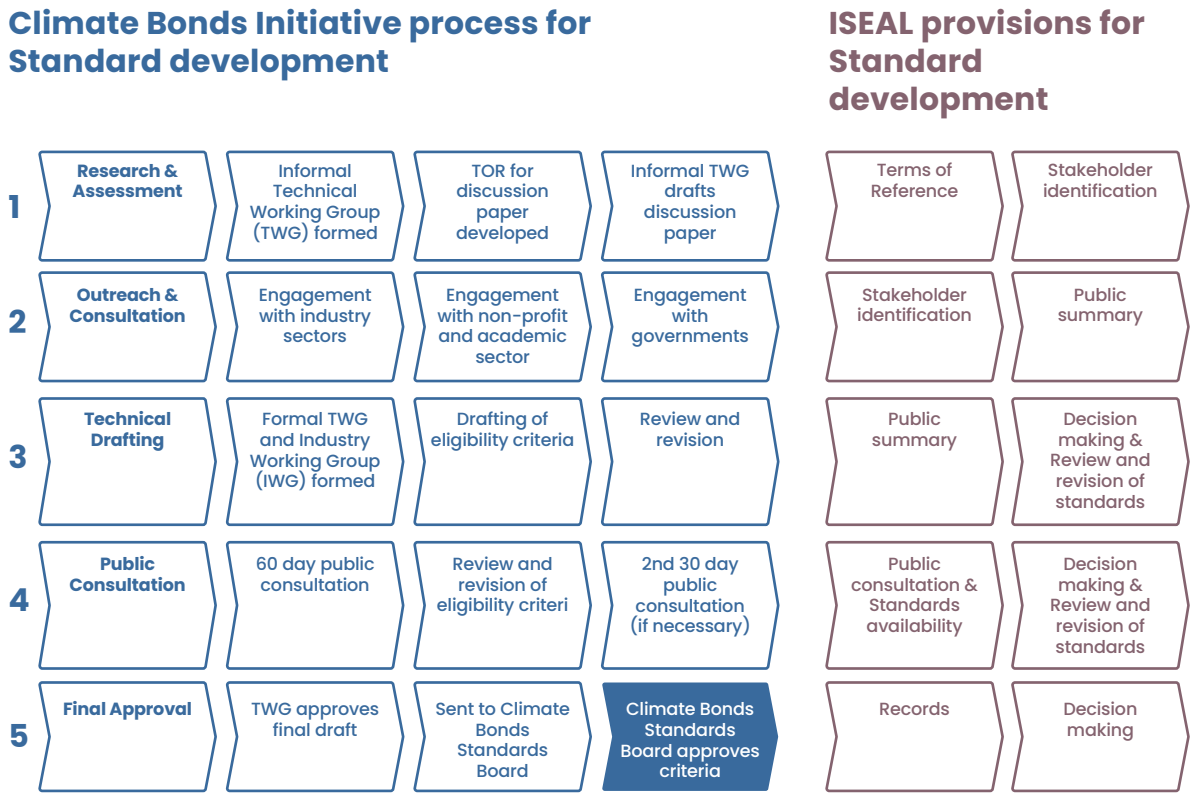
The bonds and loans which are verified and comply with the Standard are called Certified Climate Bonds. Currently, certified bonds are available only for the CBI Taxonomy. To receive Certification, issuers must appoint an Approved Verifier, who will provide assurance that the bond meets the Climate Bonds Standard's requirements, and the Board approves the certifications (CBI, 2020h).

The Standard allows Certification of a bond prior to its issuance, enabling the issuer to use the Climate Bonds Certification Mark in the bond marketing efforts and investor roadshows. After the bond has been issued and allocation of the bond proceeds has begun, the issuer must confirm the Certification by obtaining another assurance (the "Post-Issuance" report) and providing that to the Climate Bonds Standard Board (CBI, 2020d).

Classification and criteria:

As a subset of the CBI Taxonomy, CBI has defined various Sector Criteria that are periodically updated. Each Sector Criteria contain specific screening criteria that are consistent with the Paris Climate goals and are verified based on their contribution to climate change mitigation, adaptation and resilience. The process of development is in line with International Social and Environmental Accreditation and Labeling (ISEAL) approach, and the process is as shown in the following image:

Figure 30: Sector Criteria development process in Climate Bonds Initiative



Source: Climate Bonds Initiative, 2020d

In addition to the screening criteria, CBI has also developed the Climate Resilience Principles which provide guidance for determining the adaptation and resilience components of assets and activities. These are reflected in all the Sector Criteria of the CBI Taxonomy (CBI, 2020e).

Application and use:

The CBI Taxonomy could be used by various stakeholders to finance or refinance low-carbon and climate change-related assets, portfolios, and projects through green bonds. This could be used by:

- Investors
- Issuers
- Consulting firms
- Project developers and asset managers
- Utilities
- Equipment manufacturers
- Banks and Pension funds
- Aggregators
- Local Governments
- State backed entities
- National Governments (sovereign)

Colombia

Background:

The Colombian Green Taxonomy, currently under development, defines a classification system for economic activities and assets with substantial contribution to environmental objectives, which respond to the commitment, strategies and policies established by the Government of Colombia in environmental matters. The six environmental objectives defined in the Green Taxonomy are the following: climate change mitigation, climate change adaptation, protection of water resources, circular economy, pollution prevention and protection of ecosystems. In this first phase, the Green Taxonomy prioritized and developed the economic activities and assets that have the potential to make a substantial contribution to the first two environmental objectives: climate change mitigation and adaptation. The Green Taxonomy has an architecture similar to that of the EU Taxonomy in that eligible activities are required to meet mitigation thresholds, comply with Do No Significant Harm (DNSH) criteria for the other objectives and comply with minimum social safeguards.

Colombia has recognised the impacts of climate change on its economy and has developed several national plans and policies to address this over the past decade. The successful implementation of these policies and objectives has been challenging due to the lack of a common language and definitions for the private sector to classify, evaluate and report on the assets and activities that are relevant to the achievement of the country's environmental objectives. According to the results of the first survey on climate change risks and opportunities conducted by the Colombian Financial Regulator in 2018, the financial entities identified the lack of common definitions and/or a national taxonomy as one of the main barriers (SFC, 2020).

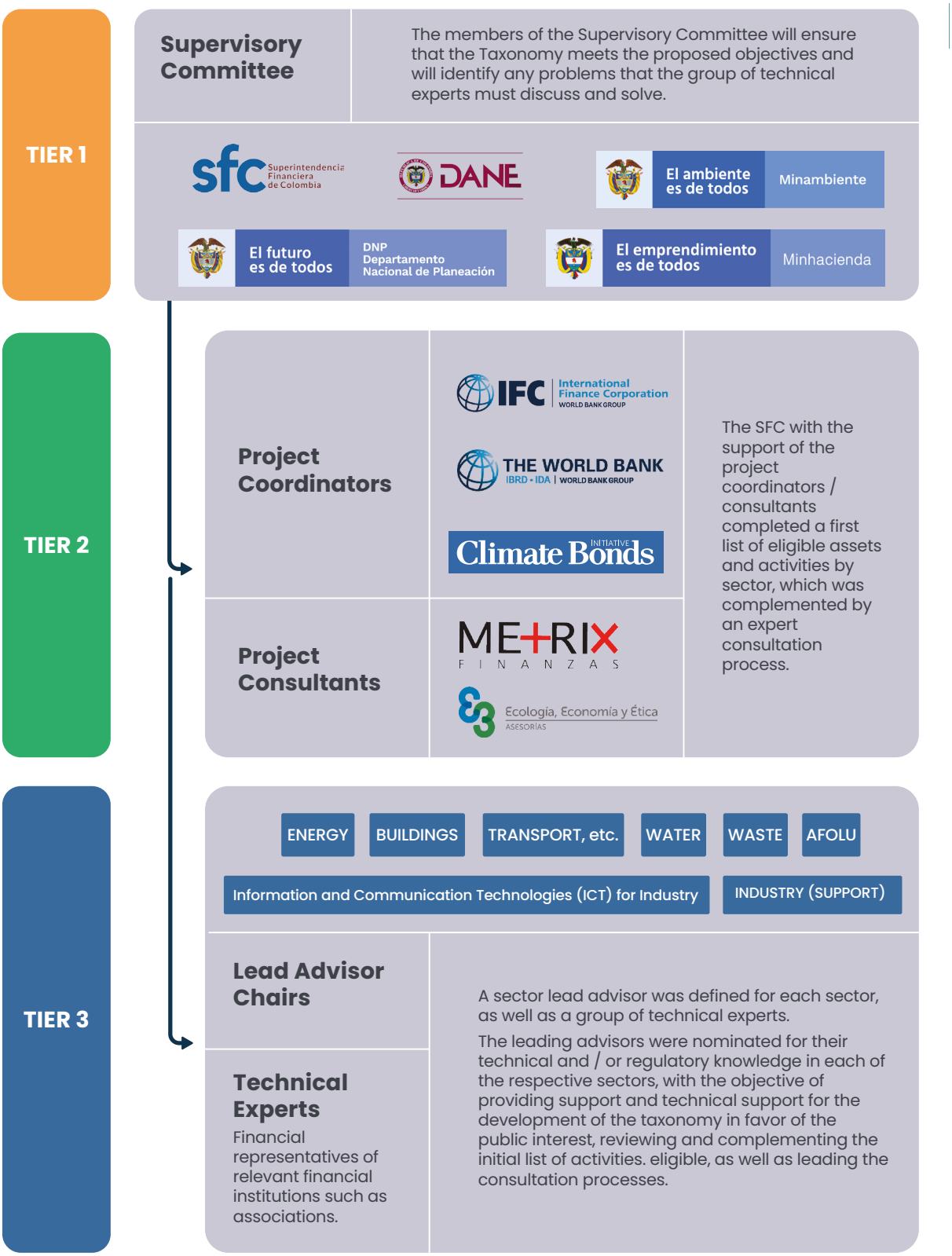
Governance:

The governance structure involved in the development of the taxonomy in Colombia is different compared to the CBI Taxonomy. It consists of a Supervisory Committee or Working Group which provided insights, led, coordinated and oversaw the entire process of the taxonomy development. The Financial Regulator (Superintendencia Financiera de Colombia or "SFC"), Ministry of Finance (Ministerio de Hacienda y Crédito Público or the MHCP), the Department of Planning, the Department of Statistics and the Ministry of Environment and Sustainable development are part of this Committee.

Specifically, the SFC was in charge of the general coordination of the taxonomy development for the following seven economic sectors: Buildings, Energy, ICT, Industry, Transport, Water and Waste and emissions control and capture. The Ministry of Finance oversaw the land use sector. The Supervisory Committee, the SFC and the Ministry of Finance were supported by coordinators and consultants that assisted in the general coordination process.

The governance structure of the Green Taxonomy development is shown below:

Figure 31: Governance structure of the Colombian Taxonomy development process



Based on inputs from Climate Bonds Initiative and SFC, 2020a

The roles and responsibilities of different committees are shown below:

Supervisory Committee

The Supervisory Committee was the owner of the project. The committee leader had regular meetings with the project coordinators and was responsible for high-level decisions and required approvals for the taxonomy development process. They were also responsible for management of the project timeline and were constantly updated by the coordinators and consultants about the project progress.

Project Coordinators

The project coordinators were responsible for technical evaluations, coordination of the technical consultation process, identification of Lead Advisor Chairs, selection of experts for technical discussions, organisation of meetings, and preparation of reports. They were also responsible for all administrative tasks and project management and report regularly to MHCP or SFC.

The coordinators were involved in preparation of the first draft of the taxonomy, which included the list of sectors, activities and screening criteria for the activities that could be easily adopted from international taxonomies and best practices.

Project Consultants

The main role of the Project Consultants was to assist with general coordination of the consultation process as well as performing ad hoc research to support development of the taxonomy.

Project Consultants also assisted with the technical discussions and administrative tasks such as planning the agendas, preparing the minutes, consolidating the comments, and writing reports.

Lead Advisor Chairs

Lead Advisor Chairs are sector experts appointed by the Project Coordinators and the Supervisory Committee. They contributed with their expert knowledge of the technical and practical aspects required for review and in the development of screening criteria for the activities. In collaboration with the Coordinators, they conducted research and convened discussions. The Lead Advisor Chairs also supported in the coordination and moderation of consultations.

The Lead Advisor Chairs oversaw mapping and inviting experts for each sector and coordination of consultations with external organisations (via calls and/or workshops) to advise on technical criteria together with the Coordinators' support.

Technical Experts

Technical Experts were invited for all the sectors from academia and research institutions, public entities, technical teams, think tanks, industry experts and

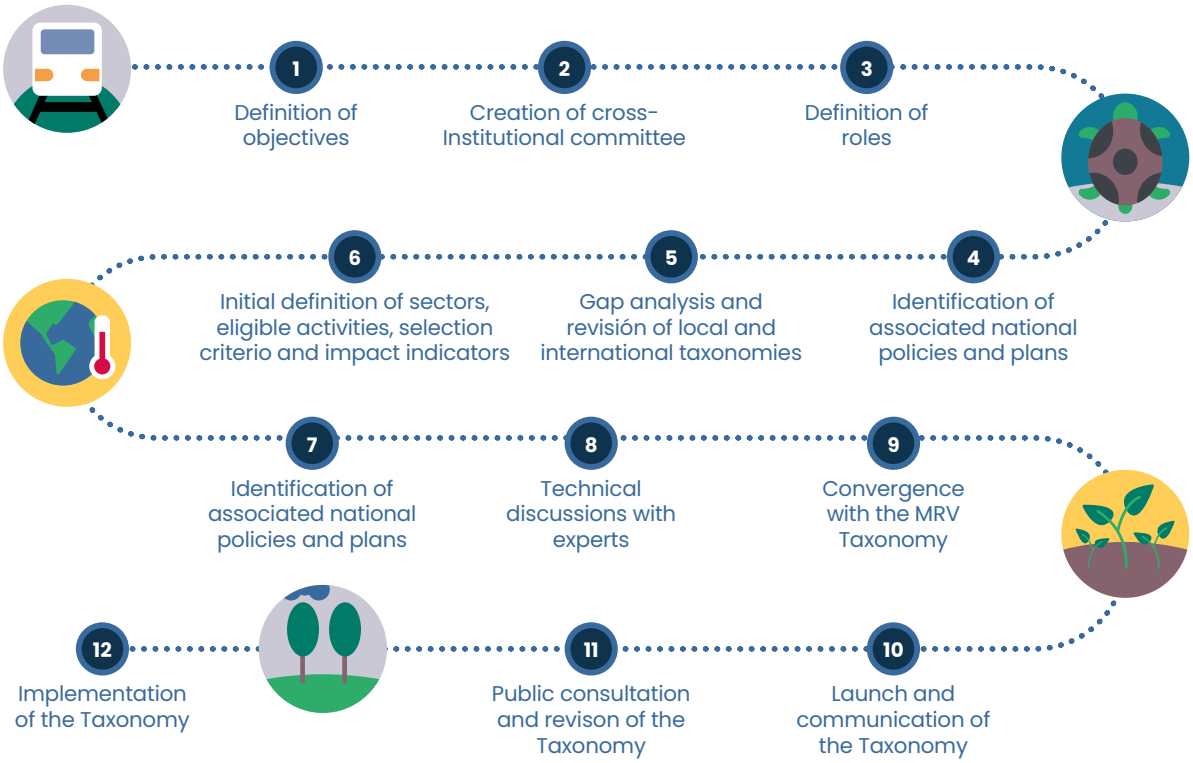
other technical institutions relevant to the respective sectors.

Their main tasks were to review the list of recommended activities and screening criteria prepared by the Coordinators and Consultants. They also discussed and further developed the screening criteria for pending activities. Additionally, they could suggest additions or modifications to the list of activities and the screening criteria, but only when the arguments were backed by science-based data.

Additionally, at a final stage, some key actors from both the financial and industrial sectors provided sector-specific experience and reviewed the practicability of proposed criteria for the activities. They provided inputs to ensure that the criteria are practical and are applicable to the respective industries. The group consisted of representation from each sector and included individual companies as well as industry associations.

The development process for the green taxonomy involves 12 stages:

Figure 32: Methodology for the development of Taxonomy in Colombia

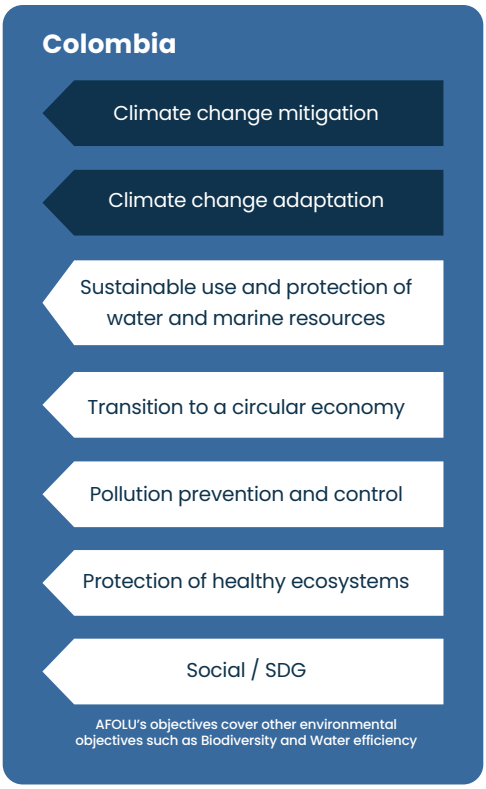


Source: SFC, 2020a

Objectives:

The main environmental objectives of the current version of the Green Taxonomy are:

Figure 33: Objectives of the Colombian Taxonomy



Source: SFC, 2020a

For the sectors of Agriculture, Forestry and Land Use, the objectives cover other environmental objectives such as Biodiversity and Water Resources, as these sectors were considered by the experts to be transversal in Colombia and require a much more holistic approach.

Application and use:

The Green Taxonomy shall contribute to the development of the Colombian green financial markets and, particularly, to the mobilization of financial flows towards activities and assets that are characterized and differentiated by their substantial contribution to the fulfilment of these environmental objectives.

Additionally, the Green Taxonomy envisions the following:

- Aligning the private sector with the national objectives and international commitments of Colombia

towards climate change mitigation and adaptation.

- Ensuring coherence with the international standards and taxonomies to ensure ease of access to international investors and financial markets.
- Avoiding greenwashing and ensuring transparency in financial markets and integrity in Colombia.

Canada

Canada does not yet have a taxonomy. However, the Expert Panel on Sustainable Finance gave specific recommendations for greening the financial system, which include the development of a green taxonomy. An overview of the work on sustainable finance, which will be the basis for the development of the Canadian taxonomy, is described in the following section.

Background:

In 2017, the Government of Canada developed the *Pan-Canadian Framework on Clean Growth and Climate Change*. The framework was created in collaboration with the public, private entities and civil society and is based on the following four pillars:

- Pricing carbon pollution.
- Complementary measures to further reduce emissions across the economy.
- Measures to adapt to the impacts of climate change and build resilience.
- Actions to accelerate innovation, support clean technology, and create jobs.

It provides a comprehensive plan to meet the emission reduction goals, grow the economy, and build resilience to climate change. Additionally, in the *Mid-Century Strategy for a Clean Growth Economy*, the government defined a scenario for 80% GHG emissions reductions from 2005 levels by 2050.

In 2018, Canada's Ministry of Environment and Climate Change and Ministry of Finance selected an expert panel on sustainable finance to explore in detail the opportunities of sustainable finance and provide specific recommendations to achieve the emissions reduction objectives. As a result, in 2019, the panel presented the *Final Report – Mobilizing Finance for Sustainable Growth* with practical and concrete recommendations focused on promoting the essential market activities, behaviours and structures required to ensure that climate change opportunity and risk management are part of business-as-usual in financial services.

The Standards Council of Canada is currently developing a national standard for a green taxonomy, which is expected to be published in 2022 (Standards Council of Canada, 2019).

Objectives:

The main objective of the *Final Report – Mobilizing Finance for Sustainable Growth* is to align mainstream financial activities in Canada with its emissions reduction objectives to drive the transition to a competitive low-emissions, and a climate-smart economy (Environment and Climate Change Canada, 2019). The three pillars of opportunity, foundations of market scale and financial products and markets for sustainable growth explained further in the report are based on the following principles:

- Impact-driven – Transition and resilience goals.
- Globally connected and relevant to Canada – Alignment with international policy but relevant to the Canadian economy.
- Designed to spur innovation – Empower businesses and services to innovate for sustainable growth.
- Scaled by private capital – Sustainable finance should become business-as-usual for private investors.
- Mitigation and adaptation focussed.
- Transparency – Importance to disclosures and transparency.
- Coordinated aligned actions from the public and private sectors.
- Inclusive and just actions.

Classification and criteria:

The report provides a package of 15 recommendations grouped into three main pillars (Environment and Climate Change Canada, 2019):

Pillar I – The Opportunity: This pillar aims to establish a concrete vision and capital plan for the country to achieve the climate objectives.

Pillar II – Foundations for market scale: This pillar determines the crucial aspects that need to be developed and implemented to establish sustainable finance as the mainstream for financial services.

Pillar III – Financial products and markets for sustainable growth: This pillar aims at developing and scaling key market structures and financial products for sustainable economic growth in the country.

Application and use:

The package of recommendations given by the *Final Report – Mobilizing Finance for Sustainable Growth* needs to be implemented by the Government of Canada and by institutions such as Environment and Climate Change Canada, Finance Canada, Statistics Canada, Natural Resources Canada, the Bank of Canada, Innovation, and Science and Economic Development Canada, in consultation with academia, federal, provincial, territorial, Indigenous, financial and private sector partners.

The recommendations aim to involve all Canadian institutions, sectors, and communities in the sustainable growth of the country. With respect to the implementation of TCFD, the panel recommended

a timeline for companies and financial institutions as shown below:

Figure 34: Timelines for the implementation of TCFD

COMPANY DEFINITION	PHASE 1	PHASE 2
Market Cap > $88 Market Cap > $2B and Revenue > $1B	End of 2022 (≈3 years)	End of 2022 (≈3 years)
Companies below these Thresholds	End of 2024	End of 2024
FINANCIAL INSTITUTION DEFINITION	**PHASE 1**	**PHASE 2**
Schedule 1 Bank Life and P&C Insurance	End of 2022 (≈3 years)	End of 2024 (≈5 years
Pension Plans and Investment Boards with AUM >$20B		
Companies with Premiums >5% of Market Share		
Other Banks Life and P&C Insurance	End of 2024	End of 2026
Pension Plans and Investment Boards with AUM $20B		
Companies with Premiums <5% of Market Share		

Source: Environment and Climate Change Canada, 2019

Climate-related disclosures are also recommended to be included in annual reports and filings by the end of Phase 2.

Annex 3: Prioritisation of sectors according to ELECTRE

The following data mentioned in the next table was used for evaluation and ranking of the sectors using the ELECTRE method.

Raw data for analysis					
	P-1	P-2	P-3	P-4	P-5
	Bank credits	GHG emissions	FDI	GDP	UoP[12]
	$ MIllion Chilean Pesos	ton Co2 eq/year	USD Million	USD Million	USD Million
Energy	$ 3.542.234	50.403.176	$ 17.804	$ 8.526	$ 456
Transport	$ 4.013.089	28.614.668	$ 11.794	$ 14.130	$ 5.734
Buildings	$ 9.900.276	7.936.420	$ 301	$ 19.453	$ 547
ICT	$ 1.069.253	0	$ 1.381	$ 5.899	$ -
Industry	$ 7.849.200	6.611.329	$ 14.340	$ 28.366	$ -
Agriuculture	$ 3.069.659	11.789.416	$ 281	$ 8.246	$ -
Forestry	$ 533.021	-63.991.903	$ -	$ -	$ 200
Waste	$ -	8.143.844	$ -	$ -	$ 100
Water	$ -	0	$ -	$ -	$ 262

Since the parameters used for analysis have different units, the data was normalised to obtain unitless data based on ideal and critical values.

12 UoP – Use of proceeds for green bonds

Normalisation of parameters					
	P-1	**P-2**	**P-3**	**P-4**	**P-5**
	Bank credits	GHG emissions	FDI	GDP	UoP
	$ MIllion Chilean Pesos	ton Co2 eq/year	USD Million	USD Million	USD Million
Ideal Value	9900276	50403176	17804	28366	5734
Critical Value	0	0,0	0,00	0,00	0
Normalised values					
Energy	0,36	1,00	1,00	0,30	0,08
Transport	0,41	0,57	0,66	0,50	1,00
Buildings	1,00	0,16	0,02	0,69	0,10
ICT	0,11	0,00	0,08	0,21	0,00
Industry	0,79	0,13	0,81	1,00	0,00
Agriuculture	0,31	0,23	0,02	0,29	0,00
Forestry	0,05	-1,27	0,00	0,00	0,03
Waste	0,00	0,16	0,00	0,00	0,02
Water	0,00	0,00	0,00	0,00	0,05

The following weights were assigned to the normalised values (Bank credit allocation - 0,2; GHG emissions - 0,2; FDI - 0,2 GDP - 0,2 and UoP – 0,2) as shown below:

Normalised wieght values					
	P-1	**P-2**	**P-3**	**P-4**	**P-5**
	Bank credits	GHG emis-sions	FDI	GDP	UoP
	$ MIllion Chilean Pesos	ton Co2 eq/year	USD Million	USD Million	USD Million
Energy	0,072	0,200	0,200	0,060	0,016
Transport	0,081	0,114	0,132	0,100	0,200
Buildings	0,200	0,031	0,003	0,137	0,019
ICT	0,022	0,000	0,016	0,042	0,000
Industry	0,159	0,026	0,161	0,200	0,000
Agriuculture	0,062	0,047	0,003	0,058	0,000
Forestry	0,011	-0,254	0,000	0,000	0,007
Waste	0,000	0,032	0,000	0,000	0,003
Water	0,000	0,000	0,000	0,000	0,009
Weight	**0,20**	**0,20**	**0,20**	**0,20**	**0,20**

The weight-normalised values of the sectors were compared against each other to develop concordance, discordance, and credibility matrices.

Concordance matrix									
	Energy	Transport	Buildings	ICT	Industry	Agri	Forestry	Wates	Water
Energy		0,4	0,4	1	0,6	1	1	1	1
Transport	0,6		0,6	1	0,4	1	1	1	1
Buildings	0,6	0,4		0,8	0,6	0,8	1	0,8	1
ICT	0	0	0,2		0,1	0,3	0,8	0,6	0,7
Industry	0,4	0,6	0,4	0,9		0,7	0,8	0,8	0,8
Agri	0	0	0,2	0,7	0,3		0,8	0,8	0,8
Forestry	0	0	0	0,2	0,2	0,2		0,6	0,4
Wates	0	0	0,2	0,4	0,4	0,2	0,4		0,5
Water	0	0	0	0,3	0,2	0,2	0,6	0,9	

Disccordance matrix									
	Energy	Transport	Buildings	ICT	Industry	Agri	Forestry	Wates	Water
Energy		0,184	0,128	0,000	0,140	0,000	0,000	0,000	0,000
Transport	0,086		0,119	0,000	0,100	0,000	0,000	0,000	0,000
Buildings	0,197	0,181		0,012	0,158	0,047	0,007	0,032	0,009
ICT	0,200	0,200	0,178		0,158	0,047	0,007	0,006	0,007
Industry	0,174	0,200	0,041	0,000		0,021	0,007	0,006	0,007
Agri	0,197	0,200	0,138	0,012	0,158		0,007	0,003	0,009
Forestry	0,454	0,367	0,285	0,254	0,280	0,301		0,286	0,254
Wates	0,200	0,197	0,200	0,042	0,200	0,062	0,011		0,006
Water	0,200	0,191	0,200	0,042	0,200	0,062	0,011	0,032	

Credibility Matrix									
C crit	0,3	D crit	o,3						
	Energy	Transport	Buildings	ICT	Industry	Agri	Forestry	Wates	Water
Energy		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
Transport	TRUE		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
Buildings	TRUE	TRUE		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
ICT	FALSE	FALSE	FALSE		FALSE	FALSE	TRUE	TRUE	TRUE
Industry	TRUE	TRUE	TRUE	TRUE		TRUE	TRUE	TRUE	TRUE
Agri	FALSE	FALSE	FALSE	TRUE	FALSE		TRUE	TRUE	TRUE
Forestry	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE		TRUE	TRUE
Wates	FALSE	FALSE	FALSE	TRUE	TRUE	FALSE	TRUE		TRUE
Water	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	TRUE	

The final ranking was then obtained based on the count of the True Boolean values obtained as a result of the above-mentioned evaluation of the matrices.

Ranking Order	*Sector*
1	*Energy*
2	*Transport*
3	*Construction*
4	*Industry*
5	*Agriculture*
6	*Waste*
7	*ICT*
8	*Forestry*
9	*Water*

Annex 4: Sector gap assessment: Examples of technical review

The selection of sectors and activities and development of thresholds must be carried out by assessing the existing benchmarks, standards, certifications, legislation, national plans, and the importance of new activities that are key to achieving Chile's environmental goals. Based on the prioritisation analysis shown before, the sectors of Construction, Energy, Transport, Industry, and the subsector of (Mining) in Chile were analysed as examples to perform a basic gap assessment. This was based on discussions with experts from the ministries and review of key policies and standards and are described in the following sections.

Construction

The Construction sector is responsible for 7% of the direct GHG emissions in Chile of which 4% corresponds to residential buildings (Ministerio de Energía, 2020). The sector consumes approximately 22% of the total energy in Chile of which residential housing is responsible for 69% of that consumption. Over 70% of the energy is for thermal use (heating, hot water, and cooking) and the rest is for lighting, appliances, etc. (Ministerio de Energía, 2020). Construction of energy-efficient buildings and implementation of renewable energy for new and existing buildings are important for the transition of this sector towards net-zero emissions and alignment with Chile's climate goals.

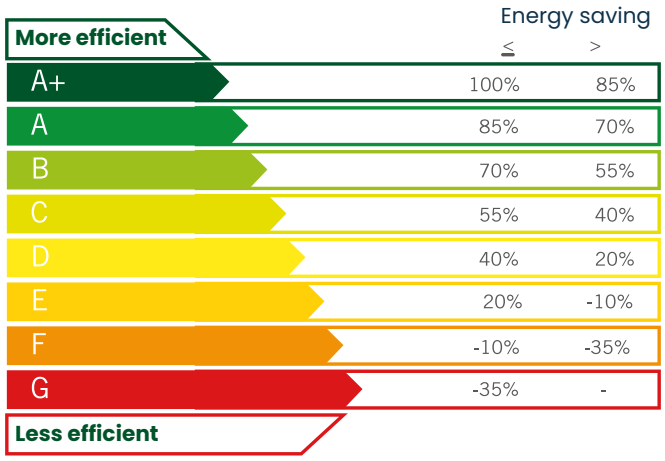
For the selection of activities and criteria in the construction sector, **the key starting points for assessment and development of the taxonomy could be the thermal regulation by the Ministry of Housing and Urban Development, the energy efficiency law (that makes the energy rating of buildings mandatory), and the ordinance for urban planning and construction and the certification for sustainable housing**.

The thermal regulation in Chile, first introduced in 2000, focuses on the efficiency parameters for roofs of residential buildings. Subsequently in 2007, the law included ventilated floors, walls, and windows. The main energy efficiency indicator is the evaluation of the demand for useful energy to achieve thermal comfort in different climatic conditions. The ordinance for urban planning and construction, which is mandatory for the sector, also establishes a thermal efficiency standard for buildings. This is used as a baseline reference for the energy rating system that is described further below.

In 2012, an energy rating system for buildings was established and subsequently revised in 2018. The evaluation process for the rating system considers thermal transmittance through the facade, thermal inertia, building orientation, infiltration, and ventilation. These are compared against a reference housing unit as defined in the ordinance for

urban planning and construction. The energy consumption indicator includes efficiency of equipment used for heating, ventilation, lighting, and hot water use and use of renewable energy (Manual de procedimientos calificación energética de viviendas en Chile, 2019). The rating system ranges from A+ (highest rank for efficiency) to G (lowest rank for efficiency) as shown in the following figure.

Figure 35: Energy rating for housing units based on efficiency



Source: Manual de procedimientos calificación energética de viviendas en Chile, 2019

The energy efficiency law that was approved in January 2021 mandates the rating system for all new buildings in Chile.

The Ministry of Housing and Urban Development in coordination with other entities in Chile has also successfully established a voluntary sustainable housing certification system. The certification is applicable only for new construction for both public and private buildings. The objective of the certification is to improve the quality of buildings through implementation of best practices in design and construction, which results in the reduction of operations and maintenance costs and emissions and improves the quality of life (Ministerio de Vivienda y Urbanismo, 2016).

The Ministry of Housing and Urban Development has proposed a modification of the thermal regulation standards. The proposal includes further improvement of the internal thermal comfort benchmark and reduction of pathological risks. This is expected to reduce the heating demand by approximately 30% and reduce the emissions of particulate matter, SO2 and NO2 (Ministerio de Vivienda y Urbanismo, 2020). This proposal also incorporates mandating criteria for medical facilities, hospitals, schools, and other educational buildings. The indicators and benchmarks will be available for nine climate zones in Chile. Several projects have already been

implemented using these new standards in many polluted zones as part of the de-contamination plans for air pollution (also known as Plan de Descontaminación Atmosférica) implemented by the Ministry of Environment (Ministry of Environment, Chile, 2020).

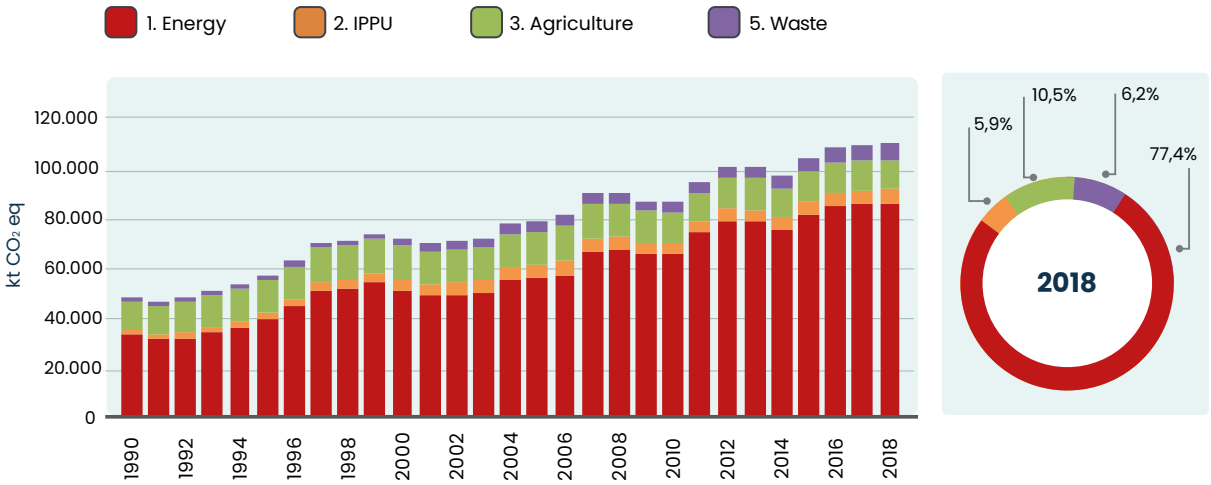
Considering the advances in energy efficiency laws, thermal regulations and standards in Chile for Buildings, the following should be considered while elaborating the sector during the taxonomy development:

- The **baseline should be established considering the existing legislation and standards**. The screening criteria, however, should be **more stringent than the mandated benchmarks** which will help in the faster transition of the sector towards net zero energy consumption.
- The activities should **include new construction as well as renovation** of existing buildings (e.g., The EU Taxonomy includes new construction, renovations, acquisition of buildings and related professional services).
- Construction activities in the sector should **include residential and non-residential buildings**.
- The **existing certifications** such as the certification for sustainable housing by the ministry of housing, LEED and other sustainable construction certifications used in Chile **should be evaluated for use as proxies**, especially if there are no baseline studies for certain types of buildings (e.g., the CBI Taxonomy allows the use of proxies such as Energy Star certification for multifamily high-rise buildings in New York, USA; EcoCasa in Mexico, LEED Gold/Platinum + 30% improvement above ASHRAE 90.1, etc).

Energy

The energy sector in Chile is responsible for 77,4% of the GHG emissions as shown below:

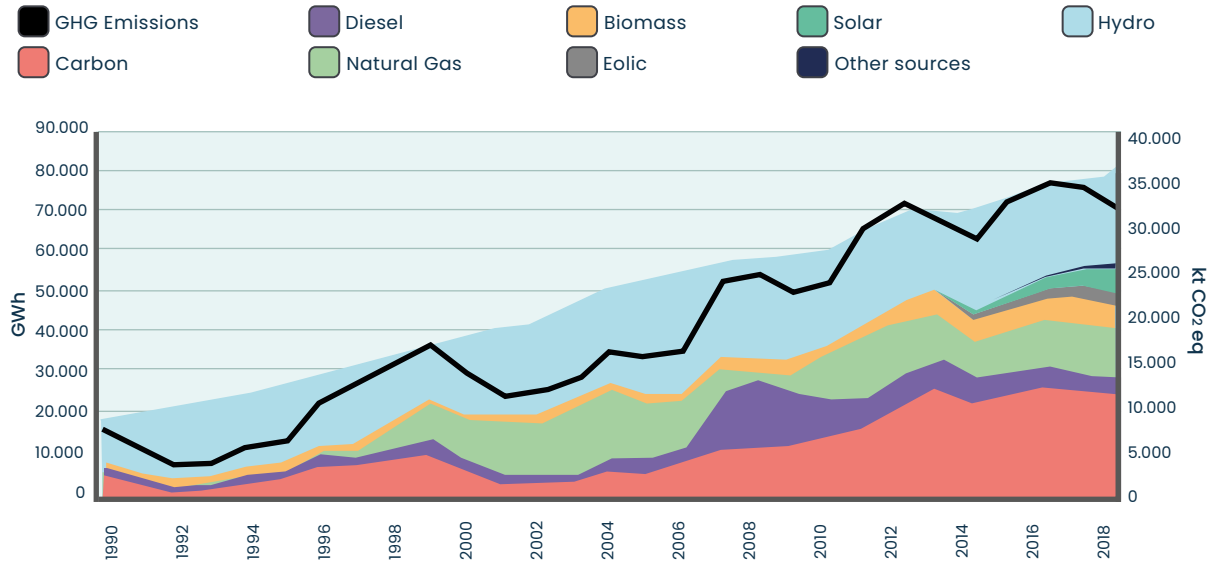
Figure 36: GHG emission distribution of various sectors in Chile



Source: Ministerio del Medio Ambiente, 2020

Carbon and fossil fuel-based energy are the primary sources for the generation of electricity in Chile and transition of the electricity component is key to achieving the climate goals of the country. The contribution of different sources of energy to electricity generation is shown below:

Figure 37: Generation of electricity based on the energy source and associated GHG emissions



Source: Ministerio del Medio Ambiente, 2020

To identify activities under the taxonomy for the energy sector, **key policies and plans such as Carbon Neutrality Plan for the Energy Sector (also known as Carbon Neutralidad en el Sector Energía) elaborated by the Ministry of Energy, which is based on the strategies of the long-term energy plan (Plan Energética de Largo Plazo); GHG mitigation plan for the Energy sector (Plan de Mitigación de gases de efecto invernadero para el sector energía)** (Ministerio de Energía, 2017); **Plan for Adaptation to Climate Change for the Energy sector (Plan de Adaptación al Cambio Climático para el sector energía) (Ministerio de Energía, 2020) and the National Energy Policy for 2050 (Política Energética Nacional 2050) (PEN) could be used as reference**. The transition of the energy sector is critical for Chile to achieve its climate goals. This can be accomplished by implementing renewable energy for direct and indirect use, including to produce green hydrogen which will help replace fossil fuels in the transport and industrial sectors (Ministerio de Energía, 2020).

Renewable energy projects in Chile are governed by the **renewable energy law** (Ley de energía renovable no convencionales), which mandates that electricity utility companies in Chile ensure a percentage of the energy sold to final customers is based on renewable energy. The law includes energy from biomass, hydroelectricity (less than 20MW), geothermal, solar, wind, ocean renewables including tidal and cogeneration systems (less than 20 MW) based on biomass or other renewables (Behnke, Estévez, & Arias, 2009).

For projects **over 3 MW capacities, an environmental impact assessment is mandatory** (León, 2021), which will help in the assessment of compliance with all applicable legislation and evaluation of potential adverse impacts due to the implementation of the projects (Servicio de Evaluación Ambiental, 2020). This assessment could be used along with the eligibility criteria for activities in the taxonomy to avoid adverse impacts to environmental objectives (e.g., Do No Significant Harm criteria for activities such as geothermal, hydropower, etc., which can have negative environmental impacts on ecosystems, aquifers, etc.).

Another important challenge for the Chilean energy system is to provide access to electricity to rural and vulnerable families. In 2018, the ministry estimated that about **30.000 houses have either partial or no access to the electricity network**. The initiative termed as Ruta de Luz by the government through its regional offices is working on solving the issue (Ministerio de Energía, 2018).

For **smaller projects** on renewable energy, the Sustainability Agency (Agencia de Sostenibilidad) has established a **system for technical evaluation of projects**, which are mandatory currently for the credits issued by the Banco Estado (Payero, 2021). The agency has a pre-defined checklist and includes technical

and financial risk evaluation of the projects (Agencia de Sostenibilidad, 2021). The agency also has a certification system called as **Certificación de Ahorros de Proyectos Energéticos (CAPE) which is used to quantify the energy savings achieved by projects post-implementation**. The certification standardises reporting and verification systems, which can be used by issuers and verifiers to monitor the success of the projects (CAPE, 2021).

Chile has successfully implemented several policies and instruments to help in the transition of the energy sector and to achieve the climate goals. The initiatives mentioned above should be considered while elaborating the activities and development of the eligibility criteria for activities. These are some key recommendations to consider for the energy sector of the Taxonomy:

- To facilitate the quick transition of the sector, **renewable energy activities such as solar PV, solar CSP and wind should have direct eligibility or easy criteria** (e.g., solar PV projects are directly eligible currently in the EU Taxonomy without the need for additional life cycle assessment but with checks to ensure no harm to circular economy aspects or to ecosystems).
- For other renewable energy activities such as **geothermal, biomass, and hydropower additional criteria such as environmental impact assessments or life cycle studies must be evaluated**. For renewable projects above 3 MW, Chile mandates environmental impact assessments. This can be used along with eligibility criteria for such activities.
- Off grid electric and small grid with renewable energy generation should have easy criteria and direct eligibility.
- **Natural gas could potentially be used** for the production of hydrogen and other purposes only as a **transition activity subject to the implementation of full carbon capture and storage**. The criteria however should include **measurement of fugitive emissions throughout the life cycle**.
- In addition to energy production, supporting activities for the transition such as the transmission and distribution networks and storage of energy should be included in the taxonomy.
- To achieve Carbon Neutrality by 2050 the electrification of end-use technologies is key, both in fixed and mobile sources. Electromobility and related activities should be evaluated under the transport sector.
- Since **green hydrogen** is critical for the energy transition of Chile, activities related to production, storage, distribution and use of green hydro-

gen should be included in the list of eligible activities.

Transport

The transport sector in Chile is responsible for 24% of the total GHG emissions of which 21% is from land-based transport and the remaining 3% is from air and water modes. The transport sector is also responsible for 36% of total energy consumption in Chile (Ministerio de Energía, 2020). The transition of this sector towards renewables has been identified as a key component in the Carbon Neutrality Plan of Chile. This can be achieved by a modal shift and investments in clean transport. **Electromobility** for passenger and commercial vehicles and the use of green hydrogen, especially for freight transport, are considered as important transition pathways for the sector.

Electromobility is expected to mitigate approximately 155 MtCO2e (17%) of the GHG emissions and green hydrogen (used for industry and freight transport) is estimated to mitigate approximately 199 MtCO2e (19%) of the GHG emissions between 2020 and 2050 (Ministerio de Energía, 2020).

The **electromobility strategy of Chile** in the carbon neutrality scenario includes electrification of 100% of taxis, public transport buses, and inter-urban transport by 2040, and at least 58% of passenger and commercial vehicles by 2050. Additionally, the focus on modal shift to public transport and micro-mobility with modes such as bicycles are part of the goals. Similarly, the **green hydrogen** scenario sets a goal of converting at least 71% of the diesel-based freight transport to green hydrogen by 2050 (Ministerio de Energía, 2020). The different strategies and information about electromobility technologies is regularly updated on the Platform for Electromobility managed by the Ministry of Energy in collaborated with the Ministry of Transport (Ministerio de Energía, 2020). The Ministry of Transport, in collaboration with Euroclima+ and GIZ, is also working on National Urban Mobility Programmes (NMUP) to strengthen capacity to plan, finance and implement projects and measures to improve mobility in cities. The program focuses on avoidance of emissions (e.g., remote working), shift of transportation modes (e.g., cycling policy) and improvement of efficiencies (e.g., tire certification, Euro VI, etc.) (Ministerio de Transportes y Telecomunicaciones, 2020).

The energy efficiency law of Chile includes efficiency benchmarks for vehicles, provides incentives for electric vehicles and declares hydrogen as a fuel. The law also establishes benchmarks based on gCO_2 per litre of fuel which should be translated to CO2/km for new vehicles sold in Chile (Ministerio de Energía, 2020). The emissions, however, are calculated as an average of all the vehicles sold by the vendor and to promote the sale of electric vehicles, the law provides an incentive to count the performance of such vehicles up to three times. The specific limit, however,

is yet be defined in the regulation by the authorities (Farfán, 2021). This law empowers the Ministry of Energy to regulate the interoperability of the electric vehicle charging system to facilitate the access and connection of electric vehicle users to the charging network (Ministerio de Energía, 2020).

In addition to setting emission thresholds for transport, the taxonomy must also ensure that no harm is done to other environmental objectives such as pollution, circular economy, etc. This can be achieved by linking the activities to the available laws and standards. The Extended Producer Responsibility (EPR) law of Chile, enacted by the Ministry of Environment, requires the producers and commercial representatives of vehicles to ensure recycling of key components such as batteries, electrical and electronic components, packaging, tyres, etc. at the end of life (Ministerio de Energía, 2020). New vehicles in Chile must currently meet the Euro V or equivalent standard; this is expected to be revised to Euro VI in the next two years, which will ensure efficiency for pollution control (Ministerio de Medio Ambiente, 2020). The thresholds should also be linked to the local atmospheric decontamination plans which are implemented to tackle local pollution.

Based on evaluation of the strategy and climate goals of Chile, the following should be considered while elaborating the sector during the taxonomy development:

- The thresholds for electric and green hydrogen-based transport should be directly eligible for all modes of transport.
- For **non-electric and non-green hydrogen transport, the thresholds must be set** (e.g., g CO_2/p-km or gCO2/t-km) based on mobility models using 1.5- or 2-degree scenarios (e.g., International Energy Agency's mobility models). Additionally, the efficiency standards recommended by the energy efficiency law should be evaluated and compared against international standards (e.g., passenger vehicle thresholds of the EU Taxonomy) to establish the benchmarks for Chile. These thresholds must be periodically revised to eventually reduce transport to net-zero.
- **Infrastructure required for low-carbon transport** should be included (e.g., electric charging stations).
- **Zero-emission micro mobility** such as bicycles, electric scooters, etc. should be **directly eligible**.
- In addition to meeting the thresholds, the activities should also have **additional checks such as compliance with pollution control and circular economy laws** to avoid harm to any other environmental objectives chosen.

Mining: Opportunity for Chile to lead international collaborations

Mining is a **key sector of Chile's economy**. Chile has some of the highest global reserves of important metals such a copper (21%), molybdenum (11%), gold (7%), silver (5%), and lithium (48%), among others (Comisiòn Chilena del Cobre, 2020). The sector accounted for approximately 12% of national GDP and 56% of exports in 2020. Approximately 90,7% of exports in 2020 were copper, followed by iron, gold, silver, molybdenum, and others (Consejo Minero, 2021). Inclusion of the sector in the national taxonomy is therefore of a prime importance for Chile.

The primary goal of this sector should be the mining for strategically important minerals that are required for transition (e.g., lithium, copper, etc.). This should be achieved considering no significant harm to the environmental objectives.

The international taxonomies currently do not include the mining sector and there are no international references for the taxonomy. The Technical Expert Group (TEG) of the EU Taxonomy identified mining as an important sector in the Taxonomy but was unable to complete the work due to the complexity of the sector and time constraints. The TEG recognised that **life-cycle analysis is essential** for metals, especially those that as required for the manufacturing of low carbon technologies, clean mobility, batteries, etc (e.g., copper, cobalt, nickel, lithium, zinc, etc.). (EU TEG on Sustainable Finance, 2020). The IPSF has established a sub-group on mining which is working on the elaboration of this sector for the EU Taxonomy.

Chile can lead the initiative and work with experts globally **through collaborations** with the members of the IPSF **to develop technical criteria required to transition towards zero-emission mining**. The transition of mining requires interventions across the value chain from exploration to transport and material movement and processing. The energy transition will be key for GHG mitigation of the sector.

In Chile, the energy consumed by the mining sector is responsible for the 7% of the country's GHG emissions. This is mainly due to high dependency of the sector on fossil fuels for machinery, equipment, and thermal processes. According to the Carbon Neutrality plan for Energy elaborated by the Ministry of Housing, there are four focus areas in the mining sector to achieve the climate goals:

- Use of green hydrogen for operations of mining equipment and machinery.
- Electrification of mining equipment and machinery.
- Electrification of thermal processes (boilers and furnaces) and

- Use of thermal solar systems (Ministerio de Energía, 2020).

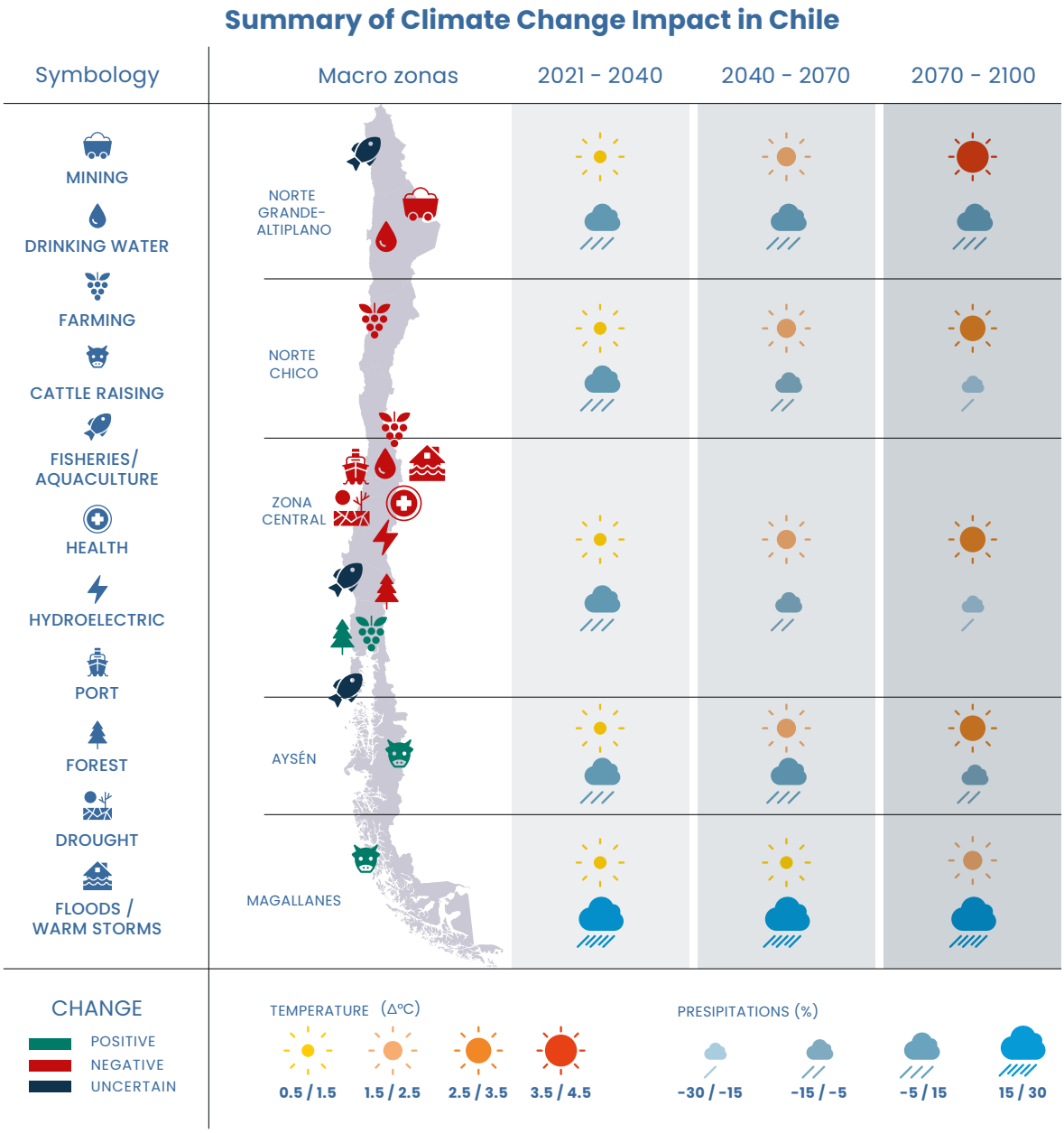
For **copper mining, the goal is to ensure that 94% of the energy consumption for surface mining and 82% of the energy consumption for underground mining will be provided by electricity and green hydrogen by 2050**. Additionally, **16%** of the energy consumption is estimated to be **from thermal solar systems**. For **non-copper mining**, the goal is that by 2050, at least **58% of the energy consumption will be by electricity**. The electrification of thermal processes is considered to achieve 25% of the energy consumption for the mining and industrial sectors (Ministerio de Energía, 2020). The **energy efficiency law of Chile** also mandates **big consumers** of energy (>50 Terra calories) to i**mplement energy efficiency measures and report the indicators and energy consumption data to the Ministry of Energy**, which will be published annually (Ministerio de Energía, 2020).

Since there are no international references for the mining sector in taxonomies, the work should involve a detailed scientific assessment of the benchmarks and standards that can be applied for the activities in the sector. Due to the sector's complexity, the criteria should evaluate options **such as life cycle assessment or environmental impact assessments** in addition to emission thresholds. The activities should be **prioritized based on their importance to the economy and the significance of the metals in the transition including manufacturing of low carbon technologies,** etc. (e.g., copper). Coal and fossil fuel mining should not be eligible under the taxonomy.

Adaptation and resilience: Should be linked to local and regional plans

Chile has identified climate risks such as abnormal rise of temperature, deficit of rainfall and extreme climate events in different regions of the country (Government of Chile, 2020) (Ministerio del Medio Ambiente, 2014). The effects of climate change are spread across sectors and result in ecosystem and economic losses. The impacts of climate change for various sectors in Chile are shown in the following image:

Figure 38: Impacts of climate change in Chile



Source: Ministerio del Medio Ambiente, 2014

Hence, in addition to developing the mitigation criteria for activities across various sectors as shown above, the taxonomy should also include criteria for activities related to adaptation to climate change. **This will help in the reduction of vulnerabilities and risks for ecosystems and the population due to global warming and climate change.**

Chile has developed several tools and plans for adaptation to climate change such as the National Adaptation Plan (**Plan Nacional de Adaptación al Cambio Climático**), The National Policy on

the reduction of disaster-related risks (Política Nacional para la reducción del riesgos de desastres 2020-2030) **and sectorial adaptation plans being developed by different ministries** (e.g., Plan de Adaptación al Cambio Climático para el sector Energía 2018-2023 by the Ministry of Energy, which evaluates the impacts of climate change for different sources of energy, generation of energy, transport, distributions and demand and established priority interventions to adapt to the effects of climate change (Ministerio de Energía, 2018)). The adaptation plans are linked to climate risks based on vulnerabilities at local and regional levels. It should also be mentioned that Chile has currently in Congress, at the time of this report's publication, the **Climate Change Framework Bill (Ley Marco de Cambio Climático)** which has the objective of establishing a legal framework that allows assigning specific responsibilities for the implementation of mitigation and adaptation measures to climate change (Ministry of Environment, 2019).

The EU Taxonomy, for example, recommends qualitative screening criteria for both adapted activities (i.e., an activity that is adapted to climate risks) and activities that enable adaptation of an economic activity (i.e., activities that reduces risks for other economic activities, e.g., a dike to protect a coastal highway). The eligibility criteria involve assessment of reduction of all material and physical climate risks based on the analysis of climate data across the project life span. Additionally, the activities must comply with DNSH criteria for other environmental objectives (EU TEG on Sustainable Finance, 2020). CBI has elaborated criteria for nature-based solutions and water infrastructure that are part of adaptation and resilience.

The activities for adaptation are cross-sectorial and hence the criteria for eligibility should be applicable to all the economic activities. The eligibility criteria should ensure that the activity leads to a substantial reduction in the adverse effects of climate change. **The eligibility criteria for adaptation in Chile should include the evaluation of such an activity through a vulnerability risk assessment considering the local and regional adaptation plans**.

Annex 5: Examples of activities under the transition framework

Examples of activities categorised under the transition framework defined by CBI (CBI, 2020f) are shown below:

Figure 39: Categorisation of activities under the transition framework

	Activity category	Examples relating to power generation	Examples relating to transport	Otros ejemplos
Brown to Green	Near zero	Solar energy generation Wind energy generation Generation of bioenergy from agricultural or forestry waste products	Manufacture or operation of electric modes of transport	Production of green hydrogen Landscape restoration
	Pathway to zero	Hydropower generation	Shipping	Manufacture of steel, cement Manufacture of packaging Crop production Property management
	Interim	Waste to energy from municipal solid waste Production of energy from bioenergy (non-waste products) Gas power generation with CCS	Production of biofuels for shipping Gas production for heavy industry	Production of blue hydrogen Fossil-fuel plastics recycling Production of mineral wate
	No pathway to zero	Electricity generation from solid fossil fuels	Long-haul passenger aviation Manufacture or operation of fossil fuel powered passenger vehicles	Production of hydrogen using steam generated from fossil fuels
	Stranded	CCS for power generation	Manufacture of electric fuel cells or batteries	Single use fossil fuel plastics
Enabling		Manufacture of renewables components	Metals recycling	CCS for industry Energy storage

Source: Climate Bonds Initiative, 2020f

Prepared by

Climate Bonds INITIATIVE

In association with the Inter-American Development Bank (IDB), The Ministry of Finance and Green Finance Public-Private Roundtable (La Mesa)

IDB Inter-American Development Bank

Ministerio de Hacienda Gobierno de Chile

Mesa Público–Privada de Finanzas Verdes

With the support of the International Climate Initiative (IKI)

Federal Ministry for the Environment, Nature Conservatio and Nuclear Safety

based on a decision of the German Bundest

INTERNATIONAL CLIMATE INITIATIVE (IKI)