

DEVELOPING A NATIONAL GREEN TAXONOMY

A World Bank Guide



WORLD BANK GROUP



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TABLE OF CONTENTS

4	List of Abbreviations
7	Foreword
8	Acknowledgements
9	Introduction
11	About The World Bank: Mission and Strategy
13	Purpose and Scope
14	PART 1. Green Taxonomy: Definition and Uses
15	Table 1. Users of the Taxonomy
17	PART 2. Guidelines: How to Develop a Green Taxonomy
25	Other Important Considerations
26	Preparation Process
30	PART 3. Overview of Existing Green Taxonomies and Other Guidance
34	Table 2. Bangladesh Taxonomy
37	Table 3. China Taxonomy
41	Table 4. Mongolia Taxonomy
45	Table 5. CBI Taxonomy
47	Table 6. EU Taxonomy
51	PART 4. Conclusions and Recommendations
54	APPENDIX A. Developing Taxonomy-Eligible Activities: Illustrative Examples
55	Box A.1. Illustration for Cleaner Urban Environment, Addressing the Objective “Air Quality Management”
56	Table BA.1.1. Example: Selecting Taxonomy-Eligible Air Quality Management Measures
58	Box A.2. Illustration for Sustainable Land Use, Addressing the Objectives “Reduce Deforestation,” “Protect Biodiversity,” and “Promote Climate Smart Agriculture”
60	Table BA.2.1 Example: Selecting Taxonomy-Eligible Land Use Practices
62	The World Bank Treasury
62	The World Bank Group Inclusive Growth and Sustainable Finance Hub in Malaysia
62	The World Bank Group’s Finance, Competitiveness and Innovation Global Practice (FCI)



LIST OF ABBREVIATIONS

BNM	Bank Negara Malaysia
BREEAM	Building Research Establishment Environmental Assessment Method
CBI	Climate Bonds Initiative
CBIRC	China Banking and Insurance Regulatory Commission
CECEP	China Energy Conservation and Environmental Protection
CFF	Climate Fiscal Framework
COP	Conference of the Parties
CSRC	China Securities Regulatory Commission
E&S	Environmental and Social
EC	European Commission
ECR	Environmental Conservation Rules
EIA	Environmental Impact Assessment
EIB	European Investment Bank
ERM	Environmental Risk Management
ESRM	Environmental and Social Risk Management
ESG	Environmental and Social Governance
ETP	Effluent Treatment Plant
EU	European Union
FI	Financial Institution
GBP	Green Bond Principles
GCF	Green Climate Fund
GHG	Greenhouse Gas
GLP	Green Loan Principles
HHK	Hybrid Hoffman Kiln
HLEG	High Level Expert Group
ICBC	Industrial and Commercial Bank of China Limited

ICMA	International Capital Market Association
IDFC	International Development Finance Club
IEA	International Energy Agency
IFC	International Finance Corporation
IISD	International Institute for Sustainable Development
IMCA	International Capital Markets Association
IPCC	Intergovernmental Panel on Climate Change
ISIC	International Standard Industrial Classification
LEED	Leadership in Energy and Environmental Design
MDB	Multilateral Development Bank
MRV	Measuring, Reporting, and Verification
MSFA	Mongolia Sustainable Finance Association
NACE	Statistical Classification of Economic Activities in the European Community
NAMFII	National Association of Financial Markets Institutional Investors
NDC	Nationally Determined Contributions
NDRC	National Development and Reform Commission
PBOC	People's Bank of China
SME	Small and medium enterprises
SDG	Sustainable Development Goal
SREDA	Sustainable and Renewable Energy Development Authority
TCFD	Task Force on Climate-Related Financial Disclosures
TEG	Technical Expert Group
TR	Taxonomy Regulation
UN	United Nations
UNCTAD	United Nations Conference for Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change



FOREWORD

This publication, *Developing a National Green Taxonomy: A World Bank Guide*, was prepared by the World Bank in response to a request by Datuk Nor Shamsiah Mohd Yunus, Governor of Bank Negara Malaysia (BNM), to develop a common language with which to discuss climate resilience and to support decisions related to climate risk in fundraising, lending, and investment activities.¹ In September 2019, BNM issued a discussion paper on the guiding principles for identifying economic activities that contribute to climate change mitigation and adaptation and other environmental objectives.

This guide includes recommendations for the drafting of national green taxonomies, as well as a comparison of several existing taxonomies, in an attempt to support countries in their efforts to clarify to market participants the types of activities that are deemed environmentally sustainable. Given global concerns about environmental sustainability and the interest among countries in providing clear guidance on the definition of green activities, the World Bank is pleased to share this guide with the hope that it will support all stakeholders in their transition to an environmentally sustainable future.

The World Bank is committed to supporting environmentally sustainable investments, both through its own financing and by working with others to mobilize consistent and adequate investments in low-carbon products and green initiatives that protect the environment and ensure sustainable growth. I am also extremely pleased that the timing of this publication coincides with the renaming of our Global Hub as the *World Bank Group Inclusive Growth and Sustainable Finance Hub*—which is a reflection of the deep commitment of Malaysia and the World Bank towards supporting the global agenda on environmental sustainability.



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¹ Datuk Nor Shamsiah Mohd Yunus, “Governor’s Keynote Address at the Regional Conference on Climate Change” (speech, Regional Conference on Climate Change, Kuala Lumpur, Malaysia, September 25, 2019), https://www.bnm.gov.my/index.php?ch=en_speech&pg=en_speech&ac=839&lang=en.

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INTRODUCTION

In recent decades, the challenges of a rapidly warming planet and other aspects of environmental degradation have motivated a call for all actors in society, including the financial sector, to take responsibility for environmental sustainability. While global financing needs for environmentally sustainable growth have not, to date, been systematically estimated, the Global Commission on the Economy and Climate reckons that the world will need to invest approximately US\$90 trillion in sustainable infrastructure assets over the next 15 years.² Financing is also needed to support sustainable agriculture and avoid deforestation, among other priorities.

The funding will have to come from both the public and private sectors, leveraging all asset classes, including bank credits, bonds, and secured assets, and involving a wide range of actors, including international financial institutions, central banks and financial regulators, banks, and institutional investors.

In 2016, the G20 Study Group launched under China's presidency identified a lack of clarity in definitions as one of many obstacles to scaling up green financing.³ This World Bank guide, *Developing a National Green Taxonomy*, addresses the need among financial market participants for clarity and transparency in what is understood and what qualifies as green. Applying its experience in shaping the debate on sustainable finance and its understanding of the very diverse national contexts of emerging economies, the World Bank Group recommends the principles and methodology for developing a taxonomy of environmentally sustainable activities.

Although green finance definitions are very complex, efforts to understand green finance are now converging on the financing of activities that can address climate change and other environmental challenges, such as natural resource conservation, biodiversity conservation, and pollution prevention and control.

While recognizing that many practitioners take a broad perspective, integrating social, governance, and other dimensions in shaping the concept of green, this guide adopts the narrower focus. The definition of green finance used in the guide is in line with the definitions developed by the G20 Green Finance Study Group and the International Capital Markets Association (ICMA)'s Sustainable Finance Committee.⁴

A well-defined and structured taxonomy can support better-informed and more efficient decision making and response to investment opportunities that contribute to achieving national environmental objectives. In the absence of formally agreed-upon definitions, market actors tend to introduce their own; the result is a lack of comparability, reliability, accountability, and higher transaction costs. A national green taxonomy is useful to provide guidance to the overall financial market.

² Global Commission on the Economy and Climate, *The Sustainable Infrastructure Imperative: Financing for Better Growth and Development* (New Climate Economy Report, 2016), <https://newclimateeconomy.report/2016>.

³ G20 Green Finance Study Group, *G20 Green Finance Synthesis Report* (September 5, 2016), http://unepinquiry.org/wp-content/uploads/2016/09/Synthesis_Report_Full_EN.pdf.

⁴ International Capital Market Association, "Sustainable Finance: High-Level Definitions" (ICMA Sustainable Finance Committee, May 2020), <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Sustainable-Finance-High-Level-Definitions-May-2020-110520v4.pdf>; G20 Green Finance Study Group, *G20 Green Finance Synthesis Report*.



ABOUT THE WORLD BANK: MISSION & STRATEGY

The International Bank for Reconstruction and Development was established in 1944 and is the original member of the World Bank Group. IBRD is an international global development institution owned by 189 member countries. As the largest development bank in the world, it supports the mission of the World Bank Group (WBG)⁵ by providing loans, guarantees, risk management products, and advisory services to middle-income and creditworthy low-income countries. Today, IBRD and the International Development Association (IDA), which was established in 1960 and lends to low-income countries, are known collectively as the World Bank and share the same leadership and staff.

At the heart of the World Bank Group's strategy are two goals endorsed by its Board of Governors in 2013:

- **END EXTREME POVERTY:** Reduce to 3 percent the proportion of people living on less than US\$1.90 a day by 2030.
- **PROMOTE SHARED PROSPERITY:** Foster income growth for the bottom 40 percent of the population in every developing country.

To deliver on the twin goals, as well as support the Sustainable Development Goals, the WBG's management and shareholders have agreed on three main priorities for our work with developing countries, including those affected by fragility, conflict, and violence: to accelerate sustainable and inclusive growth; to invest in human capital; and to strengthen resilience.

This overarching strategic framework rests on four pillars: (1) serving all clients in low- and middle-income countries; (2) creating markets, mobilizing finance for development, and expanding the use of private sector solutions; (3) leading on global issues; and (4) improving the ways we do business to be agile, efficient, and closer to clients. The WBG is committed to bringing together the international community in the urgent task of achieving the goals by 2030. They can be reached only through the collaboration of all partners, including countries, other institutions, civil society, and the private sector.

⁵ The World Bank Group consists of five organizations: the International Bank for Reconstruction and Development, International Development Association, International Finance Corporation, Multilateral Investment Guarantee Agency, and International Centre for Settlement of Investment Disputes.



PURPOSE AND SCOPE

The objective of this document is to provide a conceptual framework and procedural guide for regulators engaged in developing a green taxonomy. The recommended approach is based on the World Bank Group's experience in supporting similar initiatives in Colombia, Malaysia, Mongolia, and South Africa and the role it plays around the world in delivering positive social and environmental impacts, developing sustainable capital markets, and participating in regional, national, and global initiatives, such as Green Bond Principles (GBP) and Social Bond Principles, with the International Capital Market Association (ICMA) and the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), among others. The document also presents an overview of existing green taxonomies to illustrate the varying approaches used in different jurisdictions, and it incorporates into its guidance lessons learned from the development of these taxonomies.

The intended audience for this publication is mainly financial regulators and their environmental advisers in emerging economies, as they seek to “green” their countries' financial systems. The taxonomy framework provided here will require considerable tailoring to each country's circumstances, including its national environmental policies and its capacity in the financial sector.

The guide is organized into four parts: 1. Green Taxonomy: Definition and Uses; 2. Guidelines: How to Develop a Green Taxonomy; 3. Overview of Existing Green Taxonomies; and 4. Conclusions and Recommendations. Examples of how to identify eligible green activities are presented in appendix A.



PART 1 GREEN TAXONOMY: DEFINITION AND USES

Governments around the world are encouraging and channeling financial flows toward investments that support environmental objectives. Inspired by the European Union (EU)'s initiative to produce a green taxonomy, many emerging markets are seeking to develop clear definitions of activities or investments that embody their own national environmental objectives, such as addressing climate change or reducing deforestation.

According to ICMA, a green taxonomy is a classification system for identifying activities or investments that will move a country toward meeting specific targets related to priority environmental objectives.⁶ An identified environmental target is an aggregate result a country wishes to achieve over a defined timeline—for example, a net reduction in emissions or deforestation by a given year. As this guide will elaborate, the key question is how an activity or investment contributes to achieving national environmental objectives and meeting associated targets.⁷

A green taxonomy aims to help financial actors and others determine which investments can be labeled “green” for their jurisdictions. This support for making informed decisions on environmentally friendly investments can encourage the undertaking of projects and activities that help scale up environmentally sustainable economic development and contribute to specific environmental objectives. Table 1 provides examples of ways in which relevant actors can use the taxonomy.

6 ICMA, “Sustainable Finance.”

7 National environmental targets include those resulting from a country's ratification and adoption of global environmental conventions, including revisions.

TABLE 1. USERS OF THE TAXONOMY

Main actors	Potential uses
Banks and financial institutions	<ul style="list-style-type: none"> • Originate and structure green banking products (such as loans, credits, and guarantees) more easily and consistently • Boost efficiency of green lending and funding operations • Lower transaction costs through faster identification and verification of eligible assets • Reduce uncertainty and reputational risk • Understand and disclose exposure to sustainable investments as required by regulators
Financial regulators	<p>Help with the greening of the financial sector by:</p> <ul style="list-style-type: none"> • Supporting regulatory interventions based on the taxonomy to encourage banks to lend to eligible green companies • Facilitating new climate- or sustainability-related reporting and disclosure guidelines for financial market actors or enhancing existing ones • Measuring financial flows toward sustainable development priorities at the asset, portfolio, institutional, and national levels • Avoiding reputational risk by preventing “green-washing”
Investors	<ul style="list-style-type: none"> • Identify opportunities that comply with sustainability criteria for high-impact investments • Disclose exposure to sustainable investments, as required by regulators • Understand the exposure of portfolios to green investments and design investment policies aligned with the preferences of clients and beneficiaries • Support investor engagement with investees with regard to business models and transition plans
Green/sustainability bond issuers and other relevant actors, such as certifiers and verifiers	<p>Identify eligible activities that can be financed more easily and consistently with relevant thematic bonds</p>

 Policymakers

- Identify areas of underinvestment and bridge the funding gap
- Facilitate the development of a pipeline of green projects in accordance with national priorities for environmentally sustainable development
- Provide a reference for policymakers as they develop strategies to achieve national sustainable development commitments, such as those in the country's Nationally Determined Contribution (NDC) targets and Sustainable Development Goal (SDG) agendas, and improve associated systems for tracking and measuring finance flows

 Others

Provide a consistent starting point for standard setters and product developers





PART 2

GUIDELINES: HOW TO DEVELOP A GREEN TAXONOMY

Careful planning is required to develop a green taxonomy, as the tool has both strategic and technical dimensions. Countries may have different motivations for undertaking this task, which will influence the orientation of the taxonomy. Analyzing environmental topics to focus on those of highest priority requires intense discussion. Identifying the relevant economic sectors and categories of investments that will benefit from a green label requires technical expertise in specialist areas, such as climate, environment, energy and other sectors. Lastly, a key part of the process is deciding how the taxonomy will be used.

The following six actions are suggested to define the contents of a green taxonomy:

1

Define its **strategic goal**

2

Select **environmental objectives** relevant to the country's sustainable development priorities and agenda

3

Specify **sectors** that are expected to deliver on the objectives

4

Assess and select **specific investments** in these sectors that contribute to addressing the selected environmental objectives. Whenever possible, the criterion for selection should be the expected performance of these investments in connection with national environmental targets.

5

Identify intended **taxonomy users and beneficiaries**, their roles, and, ideally, their respective responsibilities in the implementation and use of the taxonomy

6

Outline **reporting guidelines** for market actors applying the taxonomy

1

STRATEGIC GOAL

The broad strategic goal of a green taxonomy is to ensure a future economy that is environmentally sustainable, but it may also include any or all of the following specific aims:

- To develop standardized definitions for green investments to attain priority environmental or sustainability goals
- To support the growth of domestic green financial markets
- To increase the country's attractiveness to responsible investors, including those pursuing impact-investing strategies in the domestic and international arena
- To enable tracking and reporting of public expenditures and/or private investments addressing specific environmental or sustainability issues, based on categories that are technically sound and aligned with international best practice
- To signal to investors and the broader financial markets the progress being made toward priority environmental goals
- To identify areas of underinvestment



The taxonomy should be organized along the lines of national environmental objectives that resonate with the country's overall sustainable development priorities and agenda. These may include promoting a cleaner urban environment, protecting the country's natural resources (water, land, forests), and pursuing a low-carbon and climate-resilient future. These objectives should be in accordance with existing environmental plans, policies, and regulations, including commitments to international agreements. Moreover, this guide recommends constructing a green taxonomy to meet environmental objectives that have been translated into specific targets—such as achieving a defined quality of ambient air by a given year, a desired lower rate of deforestation in the future, or a reduction in carbon emissions with respect to a baseline year—or to implement adaptation measures included in the Nationally Determined Contributions (NDC) under the United Nations Framework Convention to Combat Climate Change (UNFCCC).⁸

Developing countries face many challenges in meeting environmental objectives, with implementation often lagging policies and regulation. Lack of finance is often a major barrier to implementation. Given the overarching objective of the taxonomy to increase the flow of capital toward environmentally sustainable activities, countries may choose to select environmental objectives in which finance plays a key role and can render tangible progress. A country that lacks a clear policy framework and capacity to reduce deforestation, for instance, may focus on other environmental objectives for which solutions are known—for example, for which technologies have been tested locally and regulations are clear.

⁸ This guide adopts the view that in the context of developing countries, setting national targets as the minimum ambition level helps drive finance to sectors not yet able to make a low- or zero-carbon transition. Investments contributing to higher ambition levels are also to be included in the green taxonomy.

3

SECTORS AND CATEGORIES OF INVESTMENTS

Relevant sectors and associated activities or investments should ideally be determined based on their expected contribution to achieving the selected environmental objectives. The sectors may be derived from existing industry classifications used by national statistical agencies or the International Standard Industrial Classification (ISIC).⁹ The relevant sectors can also be drawn from environmental policies and regulations. Air quality norms and standards to address urban air pollution, for example, are likely to cover sectors such as transportation, energy, and industry. A review of public sector budget classification systems and the measuring, reporting, and verification (MRV) systems used to track and report on climate finance can also provide useful input. The eligibility criteria of existing green financial products and the banking sector's relevant exposure may be helpful. Regardless of the starting point, the eligibility of a sector and associated investments should be based on the sector's relevance to the identified environmental objectives.

⁹ International Labour Organization, International Conference of Labour Statisticians, "International Standard Industrial Classification of All Economic Activities" (ISIC rev. 4, 2007), <https://ilostat.ilo.org/resources/methods/classification-economic-activities/>.



The core task in developing the taxonomy involves the selection of specific investments within the identified sectors and categories. The key criterion for selecting a particular type of investment is how it contributes to meeting either a national target or a standard or accepted threshold. The eligibility for selection of an activity or investment in the energy sector, for instance, in the context of a national climate mitigation target (expressed as a volume of emissions reduction by a given year) may be defined by whether it meets an accepted threshold in carbon intensity (for example, gCO₂e/unit of production); in relative terms as a percentage reduction in emissions (against a baseline); or in terms of compliance with energy standards (for example, LEED, BREEAM, IFC EDGE,¹⁰ or other national standards for green buildings). In the agriculture and fisheries sectors, activities may be selected based on their compliance with defined practices incorporated into nationally accepted labels and standards (for example, those issued by the Rainforest Alliance and the Marine Stewardship Council, recognized in the United States to certify sustainable crop and fishing practices). Examples for the transportation sector in the context of air quality objectives include whether a bus engine technology meets a specific air pollutant emissions standard and whether an improvement in mass transportation meets a national or international design standard.

Detailed guidance on the process and documentation suggested for identifying activities eligible for the taxonomy are provided in appendix A. The illustrative examples, set in hypothetical countries, address two specific environmental objectives: cleaner urban environment and sustainable land use. They are constructed to meet the international harmonization criteria developed by the proposed technical expert group (TEG) report on the EU taxonomy published on March 9, 2020.¹¹ The TEG report uses the EU's 2050 target for net zero carbon emissions as its overarching climate change mitigation objective. Recognizing that many countries' taxonomies might aim to achieve net zero emissions well after 2050, the EU taxonomy indicates that these criteria "will not be identical to the EU taxonomy and may vary depending on the specificities of the local market." The appendix illustrates that taxonomies outside the EU could be considered "harmonized" when defined by fully disclosed environmental objectives, targets, and time frames.

10 That is, Leadership in Energy and Environmental Design (LEED); Building Research Establishment Environmental Assessment Method (BREEAM); and (IFC EDGE).

11 EU Technical Expert Group on Sustainable Finance, "Common Design Principles for International Taxonomy Harmonisation," in *Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance* (European Commission, March 2020), section 4.2, https://ec.europa.eu/knowledge4policy/publication/sustainable-finance-teg-final-report-eu-taxonomy_en.

5

TARGET USERS

The target users of a taxonomy should be identified clearly—for example, banks and other financial institutions, project developers, issuers of green bonds, green funds, asset owners and managers, and other investors. Expectations of how they would use the taxonomy should be clarified from the outset—for instance, banks and non-banking financial institutions would use the taxonomy to assess eligibility for green financial products, keep track of the volume of such products and report progress toward selected sustainability-related targets (for example, share of portfolio supporting low-carbon investments). Green bond issuers and project developers would be expected to align their eligibility and reporting practices and standard setters would be expected to establish relevant labels in line with the taxonomy, and so on.



Regulators and government entities who formulate the green taxonomy may be interested in monitoring its effectiveness in steering financial flows toward priority environmental objectives. Such monitoring and oversight may involve mandatory or voluntary approaches to how market actors and users will report on the adoption of the taxonomy.

A mandatory approach will ensure regular and consistent reporting by all or a subset of relevant market actors and users, enabling a regulator to track flows toward key objectives. Regulators may be interested, for example, in tracking adoption by a given type of user (for instance, utilities or certain industry sectors), using the company's turnover, revenues, capex, and so on as relevant metrics. In other cases, issuers of green financial securities may be tracked using nominal values, marked-to-market accounting, and other metrics. Other national circumstances may prioritize financial intermediation, in which case relevant reporting metrics may include book value of green loans, percentage against overall portfolio, and weighted-average lending rates, among others.

Under a voluntary approach, relevant market participants would be allowed to decide on the scope and frequency of reporting—for instance, as part of regular annual nonfinancial disclosures. Under either approach, reporting would provide information with regard to the following:

- Aggregate flows of sustainable finance and investments (possibly broken down by type of financial instrument)
- Use of proceeds (that is, environmental topic, type of activities, sectors, and so on)

Finally, the structure of a green taxonomy also provides a useful reference for users interested in reporting on expected environmental results or impacts to the extent that such reporting is required by a given financing instrument (for example, a green bond) or is part of a disclosure practice (for example, the Global Reporting Initiative). As can be seen, specific national circumstances will dictate the relevant criteria for using reporting to track progress in implementation of the taxonomy.





OTHER IMPORTANT CONSIDERATIONS

As outlined in the previous discussion, taxonomy definitions should be developed in accordance with a country's existing environmental targets, laws, standards, and labeling schemes. At all times, **the focus should be on providing a technically sound justification for the activities and investments considered green**—that is, on applying a science-based approach to explain the connection between the activities and national environmental targets. This logic is aligned with international practices, such as the EU taxonomy and the GBP.

Another important issue that needs to be addressed is **cross-environmental and social risk**. The taxonomy may include a section describing the national or, if relevant, the sectoral frameworks for addressing the potential for transferring risk from one environmental objective to another or to different population groups. Examples include summarizing the norms guiding the handling of solid waste generated in wastewater treatment; the siting requirements included in environmental and social impact guidelines for any new installation that may require clearing land and resettling residents; and land expropriation. A description of the risk mitigation schemes anchored in existing national standards, policies, or regulations will inform users about how these potential risks are addressed. It is advisable to provide relevant references and links to such national and sectoral regulations.

The taxonomy should have the stature of an official guideline or policy for filtering such investments in both the public and private sectors.

International experience also suggests **a green taxonomy may not succeed in catalyzing the targeted investments to the extent desired without supporting policy and/or regulations**. For a taxonomy to be effective, it is important to connect it with existing and potential new incentives (such as fiscal incentives, soft credit lines, guarantees, and so on) that promote and support environmentally sound activities, including low-carbon and climate-resilient development. These can include lowering capital requirements for sustainable financial products, setting regulatory quotas (minimum annual targets for the disbursement of green finance), and lowering refinancing rates, among others, based on solid market research. In some cases, the introduction of such “supporting regulations” has resulted in significantly improved green finance flows. In China, for instance, mandatory green credit guidelines issued by the China Banking and Insurance Regulatory Commission (CBIRC) and the People's Bank of China (PBOC) have led to increases in green loans to projects offering energy savings or emission reductions.¹² Green loan portfolios of Bangladeshi banks also increased significantly after the central bank set a minimum annual target for green financing for banks and other financial institutions.

¹² Sustainable Banking Network, *Country Progress Report: Addendum to SBN Global Progress Report, China* (Washington, DC: International Finance Corporation, 2018), <http://documents.worldbank.org/curated/en/703201520918257947/pdf/124200-WP-CN-ENGLISH-SBN-Country-Progress-Report-China-PUBLIC.pdf>.



PREPARATION PROCESS

A national green taxonomy should be developed jointly by financial sector regulatory authorities, in close coordination with the national authorities responsible for defining the country's sustainable development agenda and priorities, as well as with the national authorities responsible for supporting and promoting environmental protection and climate action. Climate, environmental, energy scientists and sector technical experts need to be involved from an early stage. Consultation with stakeholders in all sectors, including industrial corporates, cooperatives, small and medium enterprises (SMEs), financial services providers, and so on, is highly recommended. Direct input and participation of relevant stakeholders is a critical component for the creation of a robust green taxonomy.



The World Bank recommends the creation of a steering committee or working group consisting of key stakeholders and local technical specialists to facilitate its drafting. Considering the complexities inherent in defining the detailed content of a taxonomy, the working group's purpose is to help ensure a process that is technically sound, enjoys broad expertise and stakeholder support, and results in the creation of a taxonomy that can guide the initiative for years to come.

The following steps are recommended:

1. Establish a steering committee or expert working group to lead and coordinate the development of the taxonomy. The following is a sample list of stakeholders:
 - a. Ministry of Finance
 - b. Ministry of Environment
 - c. Ministries and government departments or entities in charge of setting the national climate change and sustainable development agenda and economic planning
 - d. Ministries and other authorities with knowledge about potentially green public and private investments (such as the Ministry of Planning and Investment)
 - e. Those in charge of oversight and regulation for the banking and insurance sectors and securities markets
 - f. Financial institutions in general, particularly those supporting sustainable investments
 - g. Investors
 - h. Stock exchange(s)
2. Agree on the strategic objective behind the development of a green taxonomy
3. Identify the targeted sustainability and/or environmental objectives
4. Take stock of complementary efforts in the country, including existing initiatives, incentives, and mechanisms to finance green activities, and the respective beneficiary sectors, as well as existing guidelines and/or certification schemes for defining or outlining eligible “green” activities
5. Consider experiences and lessons learned in comparable jurisdictions and/or internationally, prioritizing national environmental goals and commitments
6. Develop a plan of action
7. Engage local technical experts to develop a draft taxonomy and definitions
8. Review the draft, ensuring consistency and accordance with the following:
 - a. National and sectoral climate and environmentally sustainable development priorities, objectives and commitments
 - b. Overarching market and fiduciary considerations of the financial sector
 - c. Existing and foreseen fiscal and other incentives to promote green investments
9. Undertake stakeholder consultation with the following:
 - a. Environmental and other regulators with programs for environmental improvement
 - b. Banks, asset/investment managers, and banking and insurance associations
 - c. Key economic sectors most likely to be materially affected and/or benefited by the green taxonomy
 - d. Civil society and academia (particularly research centers)
 - e. International organizations and international investors
10. Collect and incorporate expert inputs and views from relevant stakeholders
11. Determine the transition process to full implementation
12. Approve and launch
13. Update based on new information and changes in technology

A third party with significant experience and global knowledge, such as a multilateral development bank, may help coordinate efforts, share international knowledge, and facilitate the adoption of the plan and the preparation of a draft taxonomy.



STEPS TO DEVELOP A NATIONAL GREEN TAXONOMY



1

Establish steering committee or working group

2

Agree on strategic objective

3

Identify environmental objectives



4

Take stock of complementary efforts in the country

5

Consider international experiences and lessons learned

6

Develop plan of action



7

Engage local technical experts

8

Review draft

9

Undertake stakeholder consultation



10

Incorporate inputs and views

11

Determine transition process

12

Approve and launch



13

Review and update



PART 3

OVERVIEW OF EXISTING GREEN TAXONOMIES AND OTHER GUIDANCE

A few financial regulatory authorities have already developed green taxonomies for their jurisdictions. In addition, various international entities have issued guidance on definitions of green investments. This section summarizes these sources of information.

In 2015, the **Green Finance Committee of the China Society for Finance and Banking**, a subsidiary of the PBOC, published a **Green Bond Endorsed Project Catalogue** that is applicable for financial institutions and listed companies who want to issue a green bond.¹³ In fact, several green standards and classification methods have been issued in China by various ministries and commissions, as well as regional authorities, including the China Securities Regulatory Commission (CSRC), the National Development and Reform Commission (NDRC), and the China Banking and Insurance Regulatory Commission (CBIRC). These taxonomies are broadly similar, with slight differences.¹⁴ Although the NDRC catalogue has the broadest coverage, this guide studied the **Green Bond Endorsed Project Catalogue 2015 Edition** (henceforth, China taxonomy) issued by PBOC, as more than 70 percent of green bonds issued in China follow this taxonomy.¹⁵

In September 2017, **Bangladesh Bank** created a list of **green products eligible for financing by banks and financial institutions** (henceforth, Bangladesh taxonomy), as part of a larger initiative to develop guidelines for green banking in the country.¹⁶ The list was updated in April 2020.

The **Mongolian Financial Stability Council** (jointly established in 2007 by the Bank of Mongolia, Ministry of Finance, and Financial Regulatory Committee) approved the Mongolian Green Taxonomy (henceforth, Mongolia taxonomy) in December 2019.

On March 9, 2020, the **EU Technical Expert Group on Sustainable Finance** published its final report on EU taxonomy.¹⁷ It contains recommendations relating to the overarching design of an EU taxonomy, as well as extensive implementation guidance on how companies and financial institutions can use and disclose against the taxonomy.

13 The Green Finance Committee of the China Society for Finance and Banking, *Green Bond Endorsed Project Catalogue* (2015 ed.), <http://greenfinance.org.cn/displaynews.php?cid=79&id=468>. The Green Finance Committee of China Society for Finance and Banking is a nonprofit professional organization whose members include the groups for whom the catalogue is intended.

14 Urban Finance Research Institute of ICBC Yin Hong, "Taxonomy: Practices from China," https://bnmclimatechange.com/wp-content/uploads/2019/10/PD5_Taxonomy_ICBC_YinHong.pdf.

15 On May 29, 2020, the PBOC, the NDRC, and the CSRC jointly submitted the Green Bond Support Project Directory (2020 edition) for public comments. The new edition aims to harmonize the different taxonomies used by different government agencies. <https://www.climatebonds.net/2020/06/chinas-top-regulators-announce-they-will-exclude-fossil-fuels-their-green-bonds-taxonomy-it>.

16 Alliance for Financial Inclusion, *Bangladesh Bank's Journey with Financial Inclusion and Climate Change* (November 2018), <https://www.afi-global.org/publications/2904/Bangladesh-Bank-s-journey-with-financial-inclusion-and-climate-change>.

17 EU TEG on Sustainable Finance, *Taxonomy: Final Report*.

In addition to the above, a number of entities interested in advancing green investments have defined eligible green activities, projects, or project categories, with varying degrees of granularity and depth. These taxonomies focus on determining eligibility for activities or investments—that is, they aim to provide a common understanding of what qualifies as green for green bond issuers and investors. The **Climate Bonds Initiative (CBI)**, for instance, has developed the **Climate Bonds Taxonomy** (henceforth, CBI taxonomy), a guide to climate-aligned assets and projects, to “support the growth of a cohesive thematic bond market that delivers a low carbon economy.”¹⁸ The CBI taxonomy is described as a summary of areas where CBI has developed specific criteria for the certification of bonds under its Climate Bonds Standards scheme.



The International Capital Market Association (ICMA) has worked with multilateral development banks, such as the World Bank Group, as well as banks, bond issuers, and investors, to develop **Green Bond Principles (GBP)** and **Green Loan Principles (GLP)**. These reporting and transparency guidelines list high level project categories to assist issuers of green bonds and loans.¹⁹

A group of multilateral development banks (MDBs)²⁰ has defined a list of activities that are compatible with low-emission pathways—that is, that contribute to climate change mitigation and adaptation. The methodology is applied uniformly to MDB commitment portfolios to track and report climate finance.²¹ It is aligned with the Common Principles for Climate Mitigation Finance Tracking and the Common Principles for Climate Adaptation Finance Tracking, jointly agreed on by the MDBs and the International Development Finance Club (IDFC) in 2015.²²

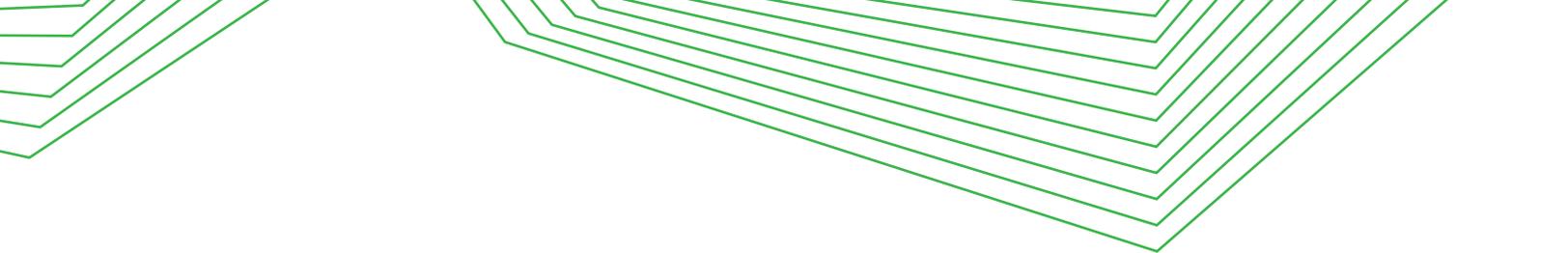
18 Climate Bonds Initiative, “Climate Bonds Taxonomy” (January 2020), <https://www.climatebonds.net/standard/taxonomy>.

19 International Capital Market Association, “Green Bonds Principles: Voluntary Process Guidelines for Issuing Green Bonds” (ICMA, June 2018), <https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>.

20 Namely, the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, the European Investment Bank, the Inter-American Development Bank Group, the Islamic Development Bank, and the World Bank Group.

21 The methodologies are detailed in table 1 and annexes B and C of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group, Islamic Development Bank, and World Bank Group, *2018 Joint Report on Multilateral Development Banks’ Climate Finance* (June 2019), https://reliefweb.int/sites/reliefweb.int/files/resources/2018_Joint_Report_on_Multilateral_Development_Banks_Climate_Finance_en_en.pdf.

22 African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, European Investment Bank, Inter-American Development Bank Group, and World Bank Group, *2015 Joint Report on Multilateral Development Banks’ Climate Finance* (August 2016), <http://pubdocs.worldbank.org/en/740431470757468260/MDB-joint-report-climate-finance-2015.pdf>.



A study of the above sources of guidance found:

- 1. Boosting green finance is the main objective.** While the intended use of a source of guidance varies based on the issuing entity's mandate, the ultimate objective is to accelerate the growth of green finance and to boost capital flows to green sectors.
- 2. Target users are largely banks, financial institutions, investors, and businesses.** The MDB taxonomy, for example, is for the use of multilateral development banks, specifically to track and report climate finance.
- 3. Sectoral scope meets the specific needs of the target users.** Some of the guides include areas not included in others. CBI and EU, for example, both include in their taxonomies Information and Communications Technology (ICT)—a carbon-intensive sector—while the others do not. CBI includes aviation, which the EU also plans to review at a later stage. The other taxonomies do not include aviation. CBI includes nuclear energy, which is not included by other taxonomies apart from China. Only China includes “clean coal” (under pollution prevention and control) in its taxonomy. At the time of the writing of this guide, the 2020 edition of the Green Bond Project Catalogue was under a comment period seeking, among other things, to remove “clean utilization of fossil fuel” projects from the list of eligible green projects.²³
- 4. National taxonomies refer to local environmental objectives in addition to climate change.** While climate change mitigation and adaptation are common goals, national taxonomies (those of Bangladesh, China, and Mongolia) also target the improvement of local environmental quality. Mongolia's taxonomy, for instance, aims to contribute to climate change mitigation, adaptation, pollution prevention, resource conservation, and livelihood improvement in the context of green finance. The CBI taxonomy and the MDBs target climate change mitigation and adaptation specifically.

²³ <https://www.climatebonds.net/2020/06/chinas-top-regulators-announce-they-will-exclude-fossil-fuels-their-green-bonds-taxonomy-it>.



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- 5. Taxonomies vary in granularity.** China's taxonomy lists general project activities rather than specific technologies. Mongolia's taxonomy, on the other hand, presents specific project technologies for almost all activities and sectors. Bangladesh lists activities and some project technologies (such as vermicompost). GBP and GLP only identify eligible sectors and highlight sectoral boundaries without any reference to specific technologies, leaving room for market actors to develop their own definitions within certain parameters. Bangladesh and China do not include sector-specific screening criteria. The EU provides metrics and thresholds in line with its decarbonizing strategy (net zero emissions by 2050). Technical screening criteria for 70 climate change mitigation and 68 climate change adaptation activities, including criteria for "do no significant harm" to other environmental objectives, are currently available. CBI provides screening criteria with metrics and thresholds for some sectors, namely bioenergy, forestry, geothermal energy, land conservation and restoration, low-carbon buildings, low-carbon transport, marine renewable energy, protected agriculture, solar energy, water infrastructure, and wind energy. The MDBs refer to emission reduction from a baseline without specifying a threshold, in line with their mandate to track climate finance flows.
 - 6. Environmental and social risk mitigation.** A key strength of the national taxonomies is the inclusion of environmental and social safeguards or risk management strategies for sensitive sectors.

An overview of the above taxonomies is provided below, highlighting the context and necessary inputs for the design of an efficient green taxonomy as identified in Part 2. The GBP/GLP were not included as they only provide very general sector definitions.



TABLE 2. BANGLADESH TAXONOMY

Background	The central bank of Bangladesh (Bangladesh Bank) is leading the country's transition to a green financial system. Its First Strategic Plan (2010-14) promoted bank lending to agricultural businesses and SMEs for carrying out environmentally friendly projects and mitigating risks of lending to those sectors. This was followed by the issuance of Environmental Risk Management (ERM) Guidelines for banks and financial institutions, Policy Guidelines for Green Banking, Environmental and Social Risk Management Guidelines (ESRM), and a reporting framework. In 2014, the Bangladesh Bank set up a regulatory quota for green lending, and, in September 2017, it developed a list of eligible products for green businesses and initiatives.
Process	The Bangladesh Bank team reviewed national regulations, guidelines, policies, guidance notes, applicable SDGs, and international standards. Consultation took place with product- and industry-specific associations and experts and technical service providers.
Overarching objective	The overarching objective is to provide a comprehensive list of green products and initiatives eligible for financing and a clearly defined scope for financing green innovations.
Target users	Banks and financial institutions
Environmental objectives	<ul style="list-style-type: none"> • Air pollution prevention • Renewable energy and energy efficiency • Water conservation and wastewater management • Waste management • Recycling and manufacture of recycled products • Manufacture of green products (e.g., green bricks) • Other (e.g., control of toxic and ozone-depleting substances)
Principles	Contribute to: <ul style="list-style-type: none"> • Environment Conservation Rules, 1997 • Perspective Plan of Bangladesh 2010-21 • National Sustainable Development Strategy 2010-21, and • the 6th and 7th Five-Year Plans

Classification code	No reference to industrial classification code
References	<ul style="list-style-type: none"> • Climate Fiscal Framework (CFF), 2014, which aimed to establish greater national ownership of climate finance; promote partnerships among government, nonprofit organizations, and the private sector; enhance result management; increase mutual accountability; and broaden the opportunity for resilient development and green growth in Bangladesh • Environmental Conservation Rules (ECR), 1997, including rules for water and air quality standards, standard guidelines for sludge and waste management, guidance on environment-friendly brick kilns for producing compressed block bricks, foam concrete/non fire bricks, tunnel kiln and hybrid hoffmann kiln (HHK) issued by Department of Environment under Ministry of Forests and Environment • Sustainable and Renewable Energy Development Authority (SREDA) guidelines for identifying renewable and resource efficiency products/projects/initiatives • Bangladesh Bank Refinance Scheme for green products/projects/initiatives. • Bangladesh Bank GTF Refinance Scheme for export-oriented industries to import green machineries for the following sectors: water use efficiency in wet processing; water conservation and management; waste management; resource efficiency and recycling; renewable energy and energy efficiency; heat and temperature management; and air ventilation and circulation efficiency • SDGs and international standards
Sectoral scope	The Bangladesh taxonomy includes eight categories: renewable energy; energy and resource efficiency; alternative energy; liquid and solid waste management; recycling and manufacturing of recyclable goods; environment-friendly brick production; green environment-friendly establishments; and miscellaneous), listing 55 green products, projects, or initiatives.
Screening criteria	No metrics or thresholds are defined. The ESRM Guidelines refer to national regulations and, when not available, World Bank or International Finance Corporation (IFC) standards. The document does not, however, spell out any specific thresholds.

Treatment of risk	All activities are expected to conform to ESRM policies issued by Bangladesh Bank
Application	Mandatory
Supporting regulation	Bangladesh Bank has set a minimum annual target for the disbursement of green finance that requires banks and other financial institutions to dedicate 5 percent of total loan disbursements and investments to green financing.
Source	Bangladesh Bank.



TABLE 3. CHINA TAXONOMY

Background	<p>In September 2015, the State Council of China approved the Overall Plan for the Structural Reform for Ecological Civilization to address the country’s environmental issues, which resulted in guidelines to green its financial system. The private sector was expected to play a crucial role in realizing the goals of the reform plan. The People’s Bank of China (PBOC) was mandated to develop a catalogue of eligible green projects to support the initiative. The catalogue, released at the end of 2015 and endorsed by the PBOC, National Association of Financial Markets Institutional Investors (NAMFII), and Shanghai and Shenzhen stock exchanges, is widely used by financial institutions and corporates in China.</p>
Process	<p>The Green Finance Committee of the China Society for Finance and Banking, a subsidiary of PBOC, convened experts from the financial and other industrial sectors to develop the China Green Bond Endorsed Project Catalogue. The Green Finance Committee commissioned two separate catalogues from the China Energy Conservation and Environmental Protection (CECEP) Consulting Co., Ltd., and the Research Center of Climate and Energy Finance of the Central University of Finance and Economics. The CECEP catalogue was finally adopted. During the research stage, the committee organized four symposiums and solicited feedback from hundreds of organizations. On May 29, 2020, the PBOC, CSRC and NDRC launched an updated “Green Bonds Endorsed Projects Catalogue” for public consultation. Given that the 2020 edition was under public consultation at the time this guide was launched, this box presents the process followed and the contents of the earlier (2015) edition.</p>
Overarching objective	<p>To green the whole financial system, of which developing a green bond market is an essential part.</p>
Target users	<p>Green bond issuers (financial institutions, or FIs) and investors</p>

Environmental objectives	<ul style="list-style-type: none"> • Energy saving • Pollution prevention and control • Resource conservation and recycling • Clean transportation • Clean energy • Ecological protection and climate change adaption
Principles	<ul style="list-style-type: none"> • Conforming to national conditions: focusing on improving the ecological environment and easing pressure on resources and following the lead of national industrial policy at the current stage • Highlighting environmental benefits: supporting projects with marked environmental benefits and positive spillover effects • Being simple and clear: taking into account that most capital market practitioners are not environmental professionals and, hence, employing definitions and a classification method that are easy to follow and apply • Making continuous adjustments: timely updating the catalogue according to technological advancements, policy adjustments, standard updates, and changes in resource and environmental conditions • Keeping in line with international practice: referring to international standards and practices when developing domestic definitions and a classification method to facilitate international cooperation in green finance.
Classification code	Classification of Strategic Emerging Industry (2012) (Trial) (Guo Tong Zi [2012] 106; National Bureau of Statistics, January 4, 2013).

References	<ul style="list-style-type: none"> • Proposal for Promoting the Application of Cleaner Production Technologies in Key Industrial Sectors for the Prevention and Control of Air Pollution • Action Plan for Implementation of Key Energy Saving Technology and Equipment Industrialization • National Key Energy-Efficient and Low-Carbon Technologies Promotion Catalogue (2014 edition, energy savings section) • Notice of National Energy Administration on Issuing Clean and Efficient Coal Use Action Plan (2015-20) • Catalogue for Low-Carbon Technology Promoted with Priority • Guidelines on Green Credit Loans • Energy Efficiency Credit Guidelines • Notice of China Banking Regulatory Commission on Filing and Reporting Green Credit Statistics Forms • Classification Standard for Energy Saving and Environmental Protection Operations (2014 edition) • Green Bond Principles (2015) • Climate Bonds Standards
Sectoral scope	<p>The China Green Bond Catalogue defines six categories (energy saving, pollution prevention and control, resources conservation and recycling, clean transportation, clean energy, and ecological protection and climate change adaptation), with thirty-one subcategories of projects eligible for financing via green bonds.</p>
Screening criteria	<ul style="list-style-type: none"> • Metrics selected for each project activity • Eligibility is determined based on demonstration of greenhouse gas (GHG) emission reduction, MDB Joint Methodology for Climate Finance Tracking (Common Principles), and European Investment Bank (EIB) criteria
Treatment of risk	<p>Complies with national environmental and social safeguards</p>
Application	<p>The use of the taxonomy is not mandatory. Green bond issuers are, however, often required to provide verification reports confirming the underlying assets are aligned with the taxonomy.</p>

Supporting regulation

The PBOC includes green bonds and green loans in its collateral frameworks and gives lending priority to banks holding green bonds. Its macro-prudential assessment framework, a scoring system that assesses capital levels and monitors risks for major banks, takes into consideration the ratio of green assets to conventional assets and track record of issuing green bonds. Some regional governments subsidize coupon rates for green bonds and loans. The Huzhou government offers 12 percent, 9 percent, and 6 percent subsidies for green loans depending on classification as dark green, green, and light green. The Jiangsu provincial government subsidizes 20 percent of the coupon on green bonds (with a cap of CNY 2 million for each issuer).

Source

Green Bond Endorsed Project Catalogue (2015 Edition), <http://greenfinance.org.cn/displaynews.php?cid=79&id=468>.



TABLE 4. MONGOLIA TAXONOMY

<p>Background</p>	<p>The banking sector in Mongolia has been integrating environmental and social considerations into lending and investment activities under the Mongolian Sustainable Finance (MSF) initiative since 2013. In 2018, Mongolia launched a National Sustainable Finance Roadmap (going up to 2030) to promote the integration of sustainability by all financial sector stakeholders, including banks, insurance companies, and capital market participants. Although green bonds were recognized to have the potential to reduce the green investment gap, the market did not have clarity on which activities could be considered eligible for green investment.</p>
<p>Process</p>	<p>A Green Taxonomy Committee was established in February 2019 to address this gap. The Mongolia Sustainable Finance Association (MSFA) chaired the committee, partnering with the Central Bank of Mongolia and the Ministry of Environment and Tourism. The MSFA worked closely with the Research Center for Green Finance Development at Tsinghua University and the China Green Finance Committee and received some technical assistance from China for the development of the taxonomy. The committee established five technical working groups to discuss and advise on specific sectors: energy; green building; environmental pollution; water and waste, and sustainable agriculture. The working groups included representatives from policymaking and standard-setting government organizations, financial institutions, businesses and project developers, international organizations, industry experts, and civil society institutions. Mongolia conducted two extensive consultations with banks and industries to develop the taxonomy. It was approved by the Financial Stability Council of Mongolia, which includes the Minister of Finance, the governor of the Central Bank, the head of the Financial Regulatory Commission, and the CEO of the Deposit Insurance Corporation.</p>

Overarching objective	<p>To develop a nationally agreed-on classification framework of activities that contribute to climate change mitigation, adaptation, pollution prevention, resource conservation, and livelihood improvement in the context of green finance.</p> <ul style="list-style-type: none"> • Provide a common understanding and approach to identifying, developing, and financing green projects • Enhance investors’ confidence and prevent “green washing” • Boost green financial flows from various sources • Track private sector investments into green projects • Inform national policies and strategies on green finance
Target users	<p>Primarily banks, but also capital market participants (investment funds, bond issuers), non-banking financial institutions, insurance companies, industries, and project developers, as well as green labels and standard setters</p>
Environmental objectives	<ul style="list-style-type: none"> • Climate change mitigation and adaptation • Pollution prevention • Resource conservation • Livelihood improvement
Principles	<ul style="list-style-type: none"> • Contribute to national policies and targets • Address environmental challenges • Cover high-emitting, key economic sectors • Align with international standards and good practices • Comply with ESG standards • Continues review and development
Classification code	<p>No reference to industrial classification code</p>

References	<p>National Policies</p> <ul style="list-style-type: none"> • Mongolian Sustainable Development Vision (2016–30), 2016 • Intended Nationally Determined Contributions (2030), 2015 • National Green Development Policy (2014–30), 2014 • State Policy on Energy (2015–30), 2015 • National Action Program on Climate Change (2011–21), 2011 • National Program on Air and Environmental Pollution Reduction, 2017 • National Livestock Program, 2010 • National Renewable Energy Program (2005–20), 2005 • Agricultural Policy of Mongolia (2010–21), 2010 • State Policy on Forestry (2016–30), 2015 • Law on Renewable Energy, 2015 • Law on Energy Conservation, 2015 • National REDD+ Readiness Roadmap • National Sustainable Finance Roadmap <p>International References</p> <ul style="list-style-type: none"> • CBI Green Taxonomy • China Green Taxonomy • EU Green Taxonomy Technical Expert Group report • Green Climate Fund (GCF) investment criteria • Bangladesh Central Bank’s Refinance Scheme for Green Products • High Level Expert Group (HLEG) and GFC reports
Sectoral scope	<p>Mongolia’s taxonomy specifies eight categories (renewable energy; energy efficiency; pollution prevention and control; sustainable agriculture, land use, forestry, bio-diversity conservation and ecotourism; low-pollution energy; green buildings; sustainable water and waste use; and clean transport), and twenty-eight subcategories, with examples of technologie.</p>
Screening criteria	<ul style="list-style-type: none"> • Low-pollution energy—reduce particulate matter (PM) 2.5 levels by 80 percent in comparison to coal • Energy efficiency—20 percent GHG emissions reduction • Green building—internationally accepted green building certificate Sustainable water use—20 percent water savings • Sustainable textile production—Noble Fiber national standard, as well as other internationally accepted sustainable textile standards

Treatment of risk	All activities are expected to conform to Mongolian Sustainable Finance Principles and Sector Guidelines as well as banks' own environmental and social policies
Application	The use of the taxonomy is mandatory, by the joint order of the Minister of Finance, the governor of the Central Bank, the head of the Financial Regulatory Commission, and the CEO of the Deposit Insurance Corporation.
Supporting regulation	None to date
Source	Mongolian Sustainable Finance Association



TABLE 5. CBI TAXONOMY

Background	<p>The Climate Bonds Taxonomy is a guide to climate-aligned assets and projects developed by the Climate Bonds Initiative (CBI), an international not-for-profit organization that works to mobilize global capital for climate action, including promoting the development of green and climate bonds markets. First launched in 2013 with periodic updates, the CBI taxonomy can be used by issuers to assess, prior to issuing a green bond, whether they have green assets. The Climate Bonds Standard builds on the taxonomy and sets out specific criteria so that bonds labeled as green can be assessed in terms of their alignment with the Paris Agreement goals.</p>
Process	<p>The CBI taxonomy has been developed through an extensive multi-stakeholder approach, recruiting technical experts from around the world to form its technical and industry working groups. These technical working groups apply the latest climate science, including research from the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA), to identify eligible assets and projects. The groups undertake the following process when developing sector criteria:</p> <ul style="list-style-type: none"> • Research and development phase: Discuss and advise on eligibility criteria • Review phase: Revisit criteria in light of public comment • Approval phase: Apply to Climate Bonds Standard Board for approval and release of the eligibility criteria • Market use: Regularly review and update as needed
Overarching objective	<p>To provide detailed climate-aligned criteria to green and climate bond issuers, investors, governments, and municipalities to help them understand the key investments that will deliver a low-carbon economy.</p>
Target users	<p>Green and climate bond issuers, as well as investors</p>
Environmental objective	<p>To deliver a low-carbon economy in line with the Paris Agreement</p>

Principles	The CBI taxonomy identifies the assets and projects needed to deliver a low-carbon and climate-resilient economy and specifies GHG emissions and related screening criteria consistent with the sub-two-degree Celsius global warming target set by the Conference of the Parties (COP) 21 Paris Agreement.
Classification code	No reference to industrial classification code
Sectoral scope	The CBI taxonomy presents eight categories (energy, water, transport, buildings, land use and marine resources, industry, waste, and ICT), with forty-five subcategories of eligible assets and projects.
Screening criteria	CBI provides screening criteria for some sectors consistent with limiting warming to two degrees Celsius—that is, in line with the Paris Agreement
Treatment of risk	No reference
Application	The use of the taxonomy is mandatory for certified climate bonds.
Supporting regulation	Not applicable
Source	Climate Bonds Initiative, “Climate Bonds Taxonomy” (October 2019), https://www.climatebonds.net/files/files/CBI_Taxonomy_Tables-Nov19.pdf . Katie House, “Launch: Major Update to Climate Bonds Taxonomy: Expansion of International Guide to Climate Aligned Assets and Projects” (press release, Climate Bonds Initiative, September 21, 2018), https://www.climatebonds.net/2018/09/launch-major-update-climate-bonds-taxonomy-expansion-international-guide-climate-aligned .

TABLE 6. EU TAXONOMY

Background	The European Union’s green taxonomy was developed by the European Commission (EC) as part of the EU Sustainable Action Plan, which supports the EU’s ambitious climate and energy targets to reduce greenhouse gas emissions to net zero carbon by 2050 and halve emissions by 2030. Following the publication of the action plan in May 2018, the EC set about developing the taxonomy under the direction of a technical expert group (TEG) on sustainable finance.
Process	A two-stage approach was adopted. First, in May 2018, the EC published a proposal for a regulation on the establishment of a framework to facilitate sustainable investment (the “Taxonomy Regulation”). Second, the TEG on sustainable finance was established in July 2018 to make recommendations regarding “taxonomy-eligible” activities and their associated technical criteria. The TEG consulted with more than 200 industry specialists and scientists over two years. In June 2019, following initial stakeholder consultation, the TEG published the technical report, which was updated based on feedback from the market. The final report was published on March 9, 2020.
Overarching objectives	To help investors, companies, issuers, and project promoters navigate the transition to a low-carbon, resilient, and resource-efficient economy and to serve as the reporting framework for the new EU regulation on climate-related disclosures by investors, corporations, and banks.
Target users	The EU taxonomy applies to reporting to regulators and stakeholders by all investors with staffs of more than 500, all listed corporations, and all banks. It also applies to EU member states as they set up labels or standards regarding financial products or corporate bonds presented as “environmentally sustainable.”
Environmental objectives	<ul style="list-style-type: none"> • Climate change mitigation • Climate change adaptation • Sustainable use and protection of water and marine resources • Transition to a circular economy, waste prevention, and recycling • Pollution prevention and control • Protection of healthy ecosystems



Principles	<p>To be environmentally sustainable, an activity must do the following:</p> <ul style="list-style-type: none">• Substantially contribute to achieving one or more of the environmental objectives outlined in the proposed Taxonomy Regulation• Do no significant harm (DNSH) to any of the other listed environmental objectives• Be carried out in compliance with minimum social safeguards• Comply with the technical screening criteria, which, in effect, define what it means to “substantially contribute” and DNSH to achieving an environmental objective
Classification code	<p>The EU taxonomy uses NACE (nomenclature statistique des activités économiques dans la Communauté européenne), the statistical classification of economic activities in the EU.</p>
Sectoral scope	<p>For climate change mitigation, the taxonomy identifies the following priority sectors based on their significant contributions to greenhouse gas emissions:</p> <ul style="list-style-type: none">• Agriculture, forestry, and mining• Manufacturing• Electricity, gas, steam, and air conditioning supply• Water, sewerage, waste, and remediation• Transportation and storage• Information and communication technologies• Buildings <p>For climate change adaptation, the taxonomy identifies an initial list of economic activities selected from six sectors on the basis that they are, among other things, particularly vulnerable to the impacts of climate change:</p> <ul style="list-style-type: none">• Agriculture, forestry, and mining• Electricity, gas, steam, and air conditioning supply• Information and communication technologies• Financial services and insurance• Professional, scientific, and technical activities• Water, sewerage, waste, and remediation

Screening criteria	The EU taxonomy includes activity by activity metrics and thresholds to define the eligibility of activities (e.g., GHG reduction thresholds gCO ₂ e/unit of product or compliance with standards, labels, or regulations such as Sustainable Forest Management Requirement for reforestation or technologies such as solar PV or regulations). These thresholds are consistent with the EU's Paris Agreement commitment to limit the temperature increase to 1.5°C.
Treatment of risk	The EU taxonomy specifies minimum requirements (e.g., through IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources of 2018 or the EU Habitats and Birds Directives) to avoid significant harm to other environmental objectives, and all activities must be carried out in compliance with minimum social safeguards, such as the eight fundamental International Labour Organisation conventions.
Application	Expected to be mandatory.*
Supporting regulation	The European Commission and the European Parliament are considering a "green supporting factor"—that is, a lowering of capital requirements for sustainable financial products.
Source	European Commission, "Factsheet: Commission Action Plan on Financing Sustainable Growth," https://ec.europa.eu/info/files/180308-action-plan-sustainable-growth-factsheet_en . See source EU TEG on Sustainable Finance, Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance (European Commission, March 2020), https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/200309-sustainable-finance-teg-final-report-taxonomy_en.pdf .

* The Taxonomy Regulation (TR), agreed on at the political level in December 2019, creates a legal basis for the EU taxonomy. The TR sets out the framework and environmental objectives for the taxonomy, as well as new legal obligations for financial market participants, large companies, the EU, and member states. The TR will be supplemented by delegated acts, which contain detailed technical screening criteria for determining when an economic activity can be considered sustainable and hence can be considered taxonomy aligned. By June 1, 2021, the European Commission will adopt a delegated act specifying how the corporate disclosure obligations should be applied in practice.



PART 4

CONCLUSIONS AND RECOMMENDATIONS

A national green taxonomy can be instrumental in redirecting financial flows and investments toward key national environmental sustainability goals and priorities. The development of a national taxonomy requires careful planning, extensive consultations, collaboration, and technical expertise. The countries that have already embarked on this initiative have provided a wealth of experience and lessons learned, emphasizing three essential principles:

- 1. Balancing simplicity without sacrificing granularity.** Since the taxonomy will be used mainly by financial actors, it must be written or presented in language easily understood by the financial market, yet with sufficient detail to avoid ambiguity.
- 2. Ensuring the participation of technical experts.** Both financial sector and industrial sector professionals must be consulted for expert advice in specialist areas.
- 3. Ensuring consistency in approach with international best practices.** Where possible, the approach to define eligibility should be aligned with international best practices to ensure harmonization across jurisdictions, disclose to domestic and international investors its scientific rationale, and enhance the integrity of the market. A taxonomy harmonized with others in major capital markets will support inter-market capital flows – a critical factor for countries seeking access to the growing international pool of green capital to complement local sources.

The amount of time required to develop a taxonomy will vary depending on country context, level of ambition, and resources available. National authorities who wish to undertake the process should consider it an evolving one, in which recording and cataloguing lessons learned, key experiences, and user feedback will be crucial to introduce regular enhancements and consistent improvement. The following generic phases should be contemplated:

1. Design and development
2. Pre-implementation consultations
3. Implementation
4. Review and feedback

The *design and development phase*, countries should take into account policies and financial incentives they will, more often than not, already have in place, including eligibility guidance in terms of sectors and activities, users and beneficiaries, performance metrics, and other building blocks for a national green taxonomy. As this phase may be draining and may easily derail budgeted time and financial resources, **it is important to form a steering committee** (following the guidelines elaborated on in Part 2 of this document), with relevant and appropriate representation from the outset. **The steering committee should engage technical experts** to provide insight, knowledge, and guidance.

The next phase, formal *consultation* with stakeholders, should include both those who will be directly affected by the taxonomy and those involved in ensuring its correct application. Stakeholders should be given a suitable platform and reasonable time frame to provide inputs and views to ensure the usability of the taxonomy and promote its acceptance. **These consultations should be held as widely as possible and extend well beyond implementation** to ensure proper and timely feedback for regular improvement.

During the rollout and *implementation phase*, national authorities should plan to invest sufficient resources to disseminate and clarify questions from target users, especially with regard to the benefits of the taxonomy, the obligations of target users, and the timeline for implementation. Users will benefit from outreach, webinars, or similar demonstration events that illustrate how to apply the taxonomy to different situations, and feedback from these sessions will help authorities identify improvements to the guidance it provides in its documentation. Once the taxonomy is issued, the support of a few notable users may be enlisted for immediate adoption to demonstrate its usability.

If the taxonomy is expected to serve as an aid to tracking and reporting green investment flows, under either voluntary or mandatory bases, the inclusion of examples and reporting formats will be helpful to prospective users. Similarly, **regular reporting cycles should be observed** per the defined guidelines, and **regulators may undertake monitoring activities** to ensure appropriate functioning of the overall framework. Reporting and monitoring may also serve for collecting relevant inputs for the review and feedback phase.

The *review and feedback phase* may be recurrent, with the time span between iterations dependent on national circumstances, as well as on the nature of the overarching environmental sustainability goals pursued by the taxonomy. Typically, countries will institute five-year cycles, but this by no means should be a fixed rule. It may be sensible to synchronize each review cycle with the time frames used in national or sectoral sustainable development plans.



To avoid confusion about its purpose, **a taxonomy should be developed with careful thought about its strategic goals**—that is, what are the authors ultimately expecting to achieve? Is the taxonomy a means for signaling where gaps exist in financial flows in certain sectors or activities (and the financial instruments that support them) to meet defined environmental objectives, or is it a risk assessment tool? A green taxonomy may be most useful in support of climate action (for example, mitigation of CO₂ emissions and climate adaptation), as opposed to determining exposure to climate-related risks underlying financial assets. The contribution of a green taxonomy to determining exposure will be limited, as its general purpose is usually to determine the eligibility of positive actions toward achieving its ultimate policy goals.

Should the regulators want to identify and promote reporting and disclosure of climate-related risks, the authors should consider as a starting point the framework proposed in the recommendations by the Task Force for Climate-Related Financial Disclosures (TCFD).²⁴ As this guide has illustrated, it is important to identify the highest priority objectives that resonate with a country's development strategy and toward which the financial sector has a significant contribution to make. Listing the economic sectors and the categories of investments that contribute to meeting these objectives is the next step. **The core of the taxonomy is the selection of specific activities and investments that are identifiable from national plans and policies for their contributions toward achieving defined targets that address the priority objectives.** Following that, mapping out the relevant actors, participants, beneficiaries, and stakeholders can be done more efficiently. **It is advisable, therefore, not to concentrate on a particular type of financial instrument at the beginning,** as the specific funding needs and most efficient financial solutions will be a function of the preceding factors.

And finally, a green taxonomy is only one piece of the sustainable finance puzzle. Without incentives and supporting financial regulations, a taxonomy may not succeed in boosting green finance. As authorities develop green taxonomies, **they should consider a parallel process to develop financial incentives and supporting regulations,** as highlighted in part 2.

The development of a green taxonomy should be thought through carefully. Resisting a temptation to overload its scope and ambition and adopting a gradual development approach will make its completion more realistic. Clearly, a taxonomy should not be thought of as a substitute for or a supplement to existing environmental strategies and policies. While areas of agreement may exist, simply emulating taxonomies developed for other markets with different socioeconomic conditions may create confusion among users in the real sector, or, more fundamentally, contradictions with unique national circumstances and the national sustainable development agenda. Local priority areas (such as adaptation) may also be missed. A green taxonomy that is carefully justified on the basis of national realities and sustainable development priorities enriches a country's toolkit for attracting finance toward its most pressing environmental challenges.

²⁴ Task Force on Climate-Related Financial Disclosures, *Final Report: Recommendations of the Task Force on Climate-Related Financial Disclosures* (June 2017), <https://www.fsb-tcfd.org/publications/final-recommendations-report/>. An alternative, or in some cases complementary, approach for helping market actors identify and report on key environmental risks may be what is referred to as a "brown taxonomy." A brown taxonomy can provide information on investments that do not fit within the government's plans for a future sustainable economy. It may also provide a basis for regulators to introduce increased constraints (for example, higher capital requirements) on investments that may entail high political and legal risks (such as incremental regulation and taxation of these industries).



APPENDIX A.

DEVELOPING TAXONOMY-ELIGIBLE ACTIVITIES: ILLUSTRATIVE EXAMPLES

Most published green taxonomies address four to six environmental objectives. For the purposes of illustration, the boxes below present excerpts from sample taxonomies for two hypothetical countries. In box A.1, cleaner urban environment is a key environmental objective in the development strategy of “Country XYZ.” The key objective illustrated for “Country UVW” in box A.2 is sustainable land use. Each excerpt provides a stylized and highly simplified version of the list of sectors and investment descriptions to be expected in a fully developed taxonomy, which would contain detailed technical annexes. Both have been constructed with a view toward illustrating how to assess and select investments, based on how they contribute to the priority environmental objectives.

Of note in these two examples are five elements:

- Country context providing the rationale for environmental objectives relevant to national policies and programs
- Technical grounding for the selected environmental objectives and targets
- List of relevant economic sectors
- Use of criteria for acceptability, such as standards, thresholds, or metrics, to assess how investments or activities contribute to meeting the environmental targets

The two illustrations develop taxonomy-eligible activities closely related to country policies and programs addressing priority environmental objectives. The example in box A.1 uses the activities mandated in a 10-year air quality management plan for the relevant sectors in transportation and industry. The target is the extent of reduction of air pollutant concentrations to meet the national norm over 10 years. For some activities, such as new bus engine technology, cleaner fuels, or industrial emissions, the taxonomy would use as selection criteria emissions standards specified in the plan and associated regulations.

In box A.2, the eligible activities are crop and livestock management practices that have been tested locally and contribute to the attainment of objectives linked to sustainable land use, addressing deforestation, biodiversity protection, and climate change. Government policies and plans define specific targets for increasing the land area under these sustainable practices. Thus, the metric chosen is the growth in land area with respect to a defined baseline—an indicator typically used as a proxy for measuring the improvement in environmental conditions.

In both illustrations, the taxonomy would include technical annexes cataloguing in detail these activities and the bases for targets.

BOX A.1. ILLUSTRATION FOR CLEANER URBAN ENVIRONMENT, ADDRESSING THE OBJECTIVE “AIR QUALITY MANAGEMENT”

Context: Country XYZ is a rapidly urbanizing developing country with its capital city located in a heavily congested and overcrowded metropolitan region. Other cities in the country are following the same pattern. While cities are the engine of economic growth, the growing deterioration of local environments explains the inclusion of “cleaner urban environment” as a prominent goal in XYZ’s development strategy. More specifically, in the area of air pollution, the country has adopted new policies for addressing deteriorating air quality, recognizing its contribution to respiratory ailments and loss of productivity. Poor air quality has triggered acute episodes leading to school closings and activity restrictions.²⁵

Strategic goal: Country XYZ is developing a green taxonomy to accomplish the following:

- Facilitate the mobilization of public and private finance to support air quality investments in relevant sectors and achieve the targets of its 10-year air quality management plan for metropolitan regions (the base year is 2019)
- Clarify to financial intermediaries and investors the categories of investments that are consistent with and supportive of the environmental targets of its 10-year air quality management plan.

Rationale for prioritizing air quality: Based on recent studies, the concentration of air pollutants, especially particulate matter (including PM10 and PM2.5—descriptors of the size of particulates) has been linked with premature deaths and loss of productivity. Data from the metropolitan region’s network of monitoring stations indicate previous measures to reduce ambient air pollution have been insufficient to offset growing motorization and other industrial sources of pollution. The economic importance and large share of the population exposed in cities point to the need to address growing air pollution. [Air pollutants other than particulates, such as ozone and NO_x, would feature in a comprehensive plan but are omitted for simplicity in this example.]

For these reasons, Country XYZ has included the achievement of “cleaner urban environment” as a priority objective in the green taxonomy, using its **Air Quality Management Plan** as the main policy instrument for extracting the eligible green investments, as illustrated in table A.1. References to the detailed air quality management plan and related regulations will be part of the taxonomy documentation.

²⁵ Other important challenges, such as water pollution and waste management, low carbon growth, and resilience to climate shocks, would likely feature in a green taxonomy, but are left out for simplicity.

TABLE BA.1.1.

EXAMPLE: SELECTING TAXONOMY-ELIGIBLE AIR QUALITY MANAGEMENT MEASURES

Objective: Reduce air pollution in metropolitan areas according to 10-year air quality management plan.

Targets: Gradual improvement in concentrations of PM10 and PM2.5 measured by monitoring network. By annual averages, respectively.

Sector/Subsector	Technology/Measure to be Included in Green Taxonomy
Transportation	
Mass transit systems	Expand Bus rapid Transit (BRT) network, incentive programs for access, and supporting infrastructure
Public buses	Fleet replacement upgrade program
Traffic management	Congestion-easing traffic management systems
Other transportation	Expand/modernize inspection and maintenance network Conversion of gasoline production to low sulphur Modal shift infrastructure and promotion programs
Industry/Manufacturing	
Boilers/foundries/other fuel combustion processes	Process change/tax incentive for relocation to new industrial park
Etc., etc.	

* Such as the 2016 BRT Standard published by the Institute for Transportation and Development Policy, available at <https://www.itdp.org/library/standards>

ASURES

2029, concentrations are to be at or below national norm (150 and 50 micrograms/cubic meter of air daily

Summary Description	Selection Criteria
Increase access to and efficiency of public transportation	Expanded bus rapid transit systems according to minimum national design standards, such as minimum length of dedicated bus lanes (e.g., 3 km or more) and mode for fare collection and platform-level boarding. An international standard can also serve as reference for acceptability.*
Renew public bus fleet to meet new emission standards; introduce new maintenance regime	Share of bus fleet meeting XYZ emission standard
Adopt integrated traffic management that helps to reduce idling and bottlenecks, among other traffic improvements	Design approved by national transportation authority
Tighten admissible limits in vehicle emission inspection stations	At or below end-of-pipe pollutant concentration limit in regulation
Reduce sulphur content in fuels to X ppm (lower than current level)	Share of diesel-powered vehicles with low sulphur content as national norms
Implement infrastructure and promotion programs for pedestrian and bicycle access	Meets national or international design standards for safe pedestrian and bicycle access
Redesign process or relocate facility to meet emission norm for stationary sources	Emission norms: 20 $\mu\text{gr}/\text{m}^3$ for particulate matter 30 $\mu\text{gr}/\text{m}^3$ for SO_2

[rds-and-guides/the-bus-rapid-transit-standard/about-the-brt-standard/](#).

BOX A.2. ILLUSTRATION FOR SUSTAINABLE LAND-USE ADDRESSING OBJECTIVES: “REDUCE DEFORESTATION,” “PROTECT BIODIVERSITY,” AND “PROMOTE CLIMATE SMART AGRICULTURE”

In most developing countries, agriculture accounts for an important share of income and exports and is a key sector for national food security and nutrition. Agriculture is generally categorized into five broad subsectors: crops, livestock, fisheries, aquaculture, and forestry. This illustration uses two sample crops and the livestock sectors. For simplicity, downstream processing is not covered.

Context: Country UVW has a dynamic rural economy, accounting for 40 percent of land use and mostly comprising crop agriculture and cattle ranching. Historically natural forests still account for slightly over half of total land, although many have been lost, mainly due to the expansion of the agricultural frontier. In recent years, active enforcement against illegal logging, the establishment of forest reserves, and reforms increasing land security have slowed the annual rate of deforestation to below 1 percent. However, deforestation and land degradation remain a challenge in several locations. In addition, the use of synthetic fertilizers and other agrochemicals in crop agriculture affects natural resources and ecosystems. Many livestock farms operate inefficiently because of relatively low use of technology and limited access to finance and technical support. This results in low productivity from land and water use, inadequate use of energy and agrochemicals, and generally poor production practices. Agriculture and other land uses are highly vulnerable to climatic shocks, and the sector is the principal contributor to greenhouse gas emissions.

As reflected in its national development plans, Country UVW’s economic prospects depend on more sustainable land use. The challenges described above in better managing natural resources, protecting ecosystem services, and addressing climate change are the subject of specific sectoral programs and plans identifying targets for increasing the land area adopting sustainable practices. The green taxonomy [in this illustration] focuses on addressing three specific objectives: reducing deforestation and addressing land degradation through afforestation; protecting biodiversity; and taking action on climate change (by reducing emissions and increasing resilience).

Strategic goals: Country UVW is developing a green taxonomy to accomplish the following:

- Facilitate the mobilization of public and private finance to support the transition to sustainable crop agriculture and cattle ranching. This transition means making a shift to more efficient use of land while introducing production practices (designated as “climate smart”) that are friendly to biodiversity, reduce emissions, and improve resilience.
- Clarify to financial actors the categories of investments and types of expenditures that are consistent with and supportive of the transition to sustainable crop agriculture and cattle ranching.

Technical grounding of objectives: A sound approach to addressing the environmental footprint of agriculture is to take an integrated perspective on the linkages between problems and solutions. Addressing climate resilience, for example, incorporates the same techniques that would be recommended for soil conservation, revegetation, and water management. Agriculture is highly heterogeneous in terms of the size and type of farms, the climatic and resource conditions in the territory (coastal, plains, highlands, tropics, and so on), and the regional economy. For these reasons, the taxonomy incorporates **defined sustainable practices** that are proven in the national context to contribute to the priority objectives. The metric used in national targets for these sectors is percentage increase in land area shifting to sustainable practices with respect to a defined baseline. Setting an end date for the adoption (for example, the year 2030) can be useful if the aggregate changes are being tracked by a central entity. Table A.2 summarizes the characteristics of sustainable practices to be included in the taxonomy, with more detail to be included as a taxonomy annex (not included here). Figures are hypothetical, and descriptions are stylized for illustration purposes. .



TABLE BA.2.1

EXAMPLE: SELECTING TAXONOMY-ELIGIBLE LAND USE PRACTICES

Objectives: Increase the adoption of sustainable practices in crop agriculture and cattle ranching to reduce

Targets: Gradual increase in share of total farmland utilizing sustainable practices by the year 2030 as noted sector-wide target.

Sector/Subsector	Sustainable Practice to be included in Green Taxonomy	
		Reduce Deforestation / Promote Afforestation
Agriculture CROP		
Rice	Efficient management of water Heat-tolerant varieties	Institute landscape management; reforest riparian land
Coffee	Agroforestry (shade systems) Pest- and disease-resistant varieties	Institute landscape management; increase natural forest set asides; reforest riparian land
Livestock Bovine		
	Silvopastoral systems , including intensive systems, and integrated crop-livestock systems Pasture management , including grass-legume associations	Reduce ratio of land to head of cattle; reforest riparian land; install live fences Implement grazing rotations; set aside forage reserves

*For climate mitigation and resilience, sectoral or farm-level timetables from the country's nationally determined contributions (NDC) could be the basis

deforestation and promote afforestation; protect biodiversity; and address climate change.

and for each subsector. Portfolios may include individual farm baselines and targets that are consistent with the

Summary Description		Selection Criteria	
Protect Biodiversity	Address Climate Change* M: Mitigation R: Resilience	Baseline	Target
Combine paddy field production with support for bird and other species habitats Reduce use of agrochemicals	R: Lessen water demand in dry season; stabilize yield M: Reduce methane emissions by alternating wetting-drying; reduce energy use in irrigation	410,000 ha harvested	Increase adoption from baseline of 25% to 35%
Enhance connectivity of riparian forests; connect forest fragments. Introduce varieties proved to be biodiversity friendly	M: Increase tree shade to increase carbon sequestration and storage R: Reduce losses from temperature-sensitive pests M: Reduce chemical inputs and energy use R: Lessen yield loss during peak climate variability	2 million ha harvested	Increase adoption from baseline of 30% to 60%
Introduce tree species friendly to fauna Increase shrubs and tree cover in pastureland	M: Increase carbon sequestration above and below ground M: Reduce nitrogen use and NO2 emissions M & R: Improve soil quality (physical/chemical) R: Prevent soil loss in high flood events	40 million ha in pasture land for 20 million animals	Increase adoption from baseline of 10% to 20%

* for targets, if available.



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