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Climate Finance for Ethical Banking

The Integration of Environmental Concerns in Social Aspects

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Climate finance for ethical banking: the integration of environmental concerns in social aspects

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1. Introduction. The relevance of climate change for ethical banks

Ethical banks and intermediaries play an important role in combating climate change as they fund clean energy, sustainable agriculture, energy efficiency measures but also react in case of floods or disruptions to local supply chains.

Banks and financial intermediaries have a central role as they manage and control the flow of capital to projects and companies. We understand climate finance as the funding of initiatives that help to reduce greenhouse gas (GHG) emissions, store these gases in soil or forests or help communities to adapt to the changes of climate such as disruptive weather patterns or heat waves. These activities take place in the lending business but also across the asset management field.

In general, there are two aspects that are interesting to consider. The first aspect is the disruptive effects of climate change on local communities and strategies to better adapt to these changes. Climate change is relevant as it impacts local communities through cascading effects. These are often referred to as adaptation strategies and are covered in more detail in chapter 3.

The effects of climate change are clearly felt by communities in various aspects. The increased concentration of greenhouse gases in the atmosphere enhances the greenhouse effect, trapping more heat and leading to a warming of the Earth's surface. This warming contributes to a wide range of environmental impacts underpinned by with a widely accepted scientific consensus:

- **Rising Temperatures**: The increase in greenhouse gas emissions from human activities, such as burning fossil fuels, has led to a buildup of these gases in the atmosphere, enhancing the natural greenhouse effect. This enhanced greenhouse effect traps more heat, causing a steady rise in global temperatures. As a result, we experience warmer days and nights, impacting various aspects of the Earth's climate system.

- **Rising Temperatures**: The increase in greenhouse gas emissions from human activities, such as burning fossil fuels, has led to a buildup of these gases in the atmosphere, enhancing the natural greenhouse effect. This enhanced greenhouse effect traps more heat, causing a steady rise in global temperatures. As a result, we experience warmer days and nights, impacting various aspects of the Earth's climate system.
- **Melting Ice and Glaciers**: The warming temperatures associated with climate change contribute to the widespread melting of glaciers and ice caps. The loss of ice has significant consequences for ecosystems, water availability, and sea level rise, as the melted water from these sources eventually flows into the oceans.
- **Sea Level Rise**: The melting of ice and the expansion of seawater as it warms contribute to rising sea levels. This poses a threat to low-lying coastal areas, leading to increased risks of flooding and the potential displacement of populations living in these vulnerable regions.
- **Extreme Weather Events**: Climate change is linked to an increase in the frequency and severity of extreme weather events. This includes hurricanes, droughts, floods, and heatwaves. Changes in climate patterns disrupt normal weather systems, resulting in more intense and unpredictable weather conditions with widespread impacts on communities and ecosystems(1).
- **Ocean Acidification**: The excess carbon dioxide absorbed by the world's oceans is causing a gradual increase in acidity. This acidification negatively affects marine life, particularly organisms with calcium carbonate shells or skeletons, such as corals and shellfish, disrupting marine ecosystems and biodiversity.
- **Disruption of Ecosystems**: Climate change alters the distribution and behaviour of plant and animal species, affecting ecosystems worldwide. Some species may struggle to adapt, leading to shifts in biodiversity and potential ecosystem collapse, while invasive species may thrive in new conditions.
- **Impacts on Agriculture**: Changes in temperature and precipitation patterns directly affect agricultural productivity. Shifts in growing seasons, increased frequency of

(1) Emergence of Novel Conditions is the key term. Emergence signifies the occurrence or manifestation of unprecedented conditions in a specific climate variable within a given region. Typically expressed as the ratio of the change in a climate variable to the amplitude of its natural variations (referred to as a 'signal-to-noise' ratio), emergence becomes apparent when this ratio surpasses a defined threshold. It can be expressed in terms of time or a global warming level, and estimation involves observations or model simulations.

extreme weather events, and alterations in water availability can lead to reduced crop yields and threaten global food security, particularly for vulnerable populations in developing regions. Addressing these challenges requires adaptive agricultural practices and sustainable food production systems.

The second aspect is the reduction pathways to reduce greenhouse gas emissions. These are often referred to as mitigation strategies and cover strategies to reduce greenhouse gas emissions. There are many different pathways to reduce these emissions which will be covered in chapter 4.

Addressing climate change involves mitigation efforts to reduce greenhouse gas emissions and adaptation strategies to cope with the changes that are already underway. International cooperation, policy changes, technological innovation, and individual actions all play crucial roles in combating climate change and promoting a sustainable future.

This paper will also cover the driven forces behind climate change and regulatory changes we can observe on a national, international and European level.

2. Introduction to Climate Change and the role of GHG

2.1 What is Climate Change?

Understanding the complexities of climate change and the critical role of GHGs is essential for shaping our responses to this global challenge. Climate change refers to long-term changes in the average weather patterns on Earth, particularly changes in temperature and precipitation. The primary driver of recent climate change is the increase in greenhouse gas emissions, primarily carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O), resulting from human activities such as burning fossil fuels, deforestation, and industrial processes(2).

Anthropogenic influences on climate change have been theorised since the 17th century, primarily focusing on activities such as forest clearing and agriculture. In the 1890s, scientists like Arrhenius began calculating the impact of changing CO2 concentrations on planetary temperature, while Högbom estimated that coal combustion had already offset natural CO2 absorption. By 1908, Arrhenius suggested that fossil fuel combustion could potentially warm the planet. In 1938, Callendar, analysing global records, attributed a portion of the observed atmospheric warming to anthropogenic CO2, marking an early recognition of human-induced climate effects.

Global warming denotes alterations in the global surface temperature compared to a baseline, depending on the context. Distinct global warming thresholds, like 1.5°C, 2°C, 3°C, or 4°C, are identified as shifts in global surface temperature relative to the years 1850–1900, considered the baseline due to reliable observations with extensive geographic coverage during that period. These thresholds serve as benchmarks for evaluating and conveying information about global and regional alterations, establishing a shared foundation for assessments.

(2) This section is mainly based on Intergovernmental Panel on Climate Change (IPCC), "Climate Change 2021 – The Physical Science Basis: Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change," Cambridge Core (Cambridge University Press, June 2023), https://doi.org/10.1017/9781009157896.

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Understanding the global climate system is a complicated process, involving both theoretical knowledge and empirical measurements of the significant forces and factors that influence the movement of energy and mass (such as air, water, and water vapour) worldwide. This encompasses studying the chemical and physical properties of the atmosphere, ocean, cryosphere, and land surfaces, as well as the biological and physical dynamics of natural ecosystems.

Additionally, it involves examining various feedbacks, both positive and negative, among these processes. Attributing climatic changes or extreme weather events to human activity requires comprehending how human activities can impact the climate. Achieving this understanding involves employing statistical and other techniques to distinguish the "signal" of anthropogenic climate change from the "noise" of natural climate variability. This interdisciplinary effort draws contributions from various sciences. Besides radiative transfer, other forces and factors, including thermodynamics, gravity, surface friction, and Earth's rotation, play crucial roles in governing the planetary-scale movements or "circulation" of air and water in the climate system.

Arguably the most important document to understand the current baseline of the phenomenon is the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). The IPCC is a scientific body established by the United Nations (UN) in 1988. The IPCC's primary purpose is to assess and synthesise the latest scientific knowledge on climate change, its impacts, and potential adaptation and mitigation strategies. The panel provides policymakers with regular, comprehensive assessments of the scientific basis of climate change, its potential impacts on the environment and societies, and options for addressing and mitigating its effects.

The IPCC employs the concept of risk as a fundamental aspect in assessing and conveying information to decision-makers regarding potential adverse consequences for human or ecological systems. Recognising diverse values and objectives associated with these systems, risks in the context of climate change stem from potential impacts and human responses. The IPCC's common risk framework evaluates pertinent climate information, encompassing impact-driving climate factors and low-likelihood, high-impact outcomes(3).

2.2 The international pathways to fighting climate change

Global collaboration and a holistic approach that integrates mitigation and adaptation efforts are crucial for effectively addressing the complex challenges posed by climate change. The success of these strategies relies on the active involvement of governments, businesses, communities, and individuals worldwide.

Achieving a shared understanding of climate change is challenging due to the intricate interplay between scientific knowledge and pre-existing notions of weather and climate embedded in diverse world cultures. These beliefs often stem from strong values and traditions tied to ethnic or national identities, religions, and personal relationships with weather, land, and sea.

These local understandings can both contrast with and enhance global climate science analyses. Public opinions on climate change are significantly influenced by environmental and socio-altruistic values globally, with additional impacts from political views, party affiliation, and corporate influence, particularly in key countries like the United States. Furthermore, climate change manifests unevenly across regions, with some facing observable changes, while others experience high variability that obscures underlying trends. This non-uniformity can lead to varied public awareness and risk perceptions at multiple scales(4).

(3) In the IPCC report, two metrics are used to convey the level of certainty in key findings based on underlying scientific understanding. These metrics are confidence and likelihood. Confidence is a qualitative measure gauging the validity of a finding, considering evidence quality, consistency, and agreement. Likelihood is a quantitative measure expressing uncertainty, stated probabilistically through statistical analysis or expert judgement. Throughout the reports, formal confidence assessments are indicated by calibrated language in italics (e.g., medium confidence). If there is sufficient evidence and agreement, the confidence level is evaluated, combining assessments into five qualifiers: very low, low, medium, high, and very high. Different confidence levels can be assigned for a given statement, correlating with varying degrees of evidence and agreement. Low confidence does not imply distrust but reflects the best conclusion based on current knowledge; further research may alter confidence levels.

(4) This is based on Change (IPCC), "Climate Change 2021 – The Physical Science Basis."

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Addressing climate change requires coordinated efforts on a global scale, involving cooperation and commitment from countries, organisations, and individuals. Some of the key aspects of how the international community can deal with the issue of climate change include the following(5):

- **International Agreements**: The Paris Agreement, adopted in 2015 under the United Nations Framework Convention on Climate Change (UNFCCC), is a landmark international accord. It aims to limit global warming to "well below" 2 degrees Celsius above pre-industrial levels, with efforts to limit it to 1.5 degrees. Countries that are parties to the agreement submit nationally determined contributions (NDCs) outlining their climate action plans and emission reduction targets.
- **Global Climate Funds**: the Green Climate Fund (GCF), established as part of the UNFCCC, provides financial assistance to developing countries to support both mitigation and adaptation projects. It helps these nations transition to low-carbon and climate-resilient development pathways.
- **Technology Transfer and Capacity Building**: Facilitating the transfer of clean and sustainable technologies from developed to developing countries, along with capacity-building efforts, helps enhance the ability of developing nations to address climate change effectively.
- **International Collaboration and Partnerships**: Encouraging collaboration among countries, businesses, and non-governmental organisations fosters the sharing of knowledge, resources, and best practices. Initiatives like Mission Innovation, a global partnership on clean energy innovation, exemplify such collaborative efforts.
- **Carbon Markets and Trading**: Implementing mechanisms for carbon pricing and trading, such as emissions trading systems, encourages businesses and countries to reduce their carbon footprint. This provides economic incentives for emission reductions.

(5) More information on the organisations mentioned below can be found https://unfccc.int/process-and-meetings/the-paris-agreement, https://www.greenclimate.fund/ and https://www.ipcc.ch/ https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop

- **Adaptation Funding**: Recognising the need for financial support for adaptation efforts in vulnerable regions, international cooperation can mobilise funding to help communities adapt to the impacts of climate change, such as sea-level rise, extreme weather events, and changes in precipitation patterns.
- **Research and Data Sharing**: Collaborative research efforts and the sharing of climate data contribute to a better understanding of climate change impacts and the development of effective strategies. Organisations like the Intergovernmental Panel on Climate Change (IPCC) play a crucial role in synthesising scientific knowledge.
- **Encouraging Sustainable Practices**: International efforts can promote sustainable practices in various sectors, including energy, agriculture, and transportation. This involves setting global standards, incentivising sustainable practices, and supporting capacity building.
- **Diplomacy and Advocacy**: Diplomatic efforts, negotiations, and advocacy at international forums are essential for fostering a shared commitment to ambitious climate action. High-level conferences like the Conference of the Parties (COP) provide opportunities for countries to negotiate and make collective decisions.
- **Public Awareness and Education**: Raising public awareness about climate change and its impacts is crucial. International campaigns and educational initiatives can promote a sense of shared responsibility and encourage individuals to adopt sustainable lifestyles.

The success of global efforts to address climate change hinges on the collective will and commitment of the international community. Continued dialogue, regular assessments of progress, and the adaptation of strategies based on evolving challenges are essential for effectively mitigating climate change and building a sustainable future.

2.3 The Conference of the Parties

The Conference of the Parties (COP), organised under the United Nations Framework Convention on Climate Change (UNFCCC), is a series of annual meetings where countries come together to discuss and negotiate climate-related issues. The effectiveness of COP meetings in addressing the climate crisis is a complex and debated topic.

On the 13th of December 2023, world leaders reached a new agreement at COP28, the 28th annual United Nations climate meeting in Dubai, following a year of extreme weather events(6). The agreement marked the first time countries acknowledged the need to "transition away from fossil fuels in energy systems" in a just and equitable manner. However, it does not compel action, and no specific timescale is set. The deal includes global targets for renewable energy capacity and energy efficiency improvements by 2030. COP28 is crucial for the Paris Agreement's goal to limit global temperature rises to 1.5°C, but warnings indicate the world is currently on track for around 2.7°C of warming by 2100. The "loss and damage" fund, aimed at compensating poorer countries facing climate impacts, should start operating. The summit's success will be determined by actual changes implemented in the coming years(7).

Indeed, financial commitments remain insufficient, underscoring the importance of reforming financial structures and establishing new sources of finance. The conference highlighted the critical role of empowering all stakeholders, including civil society, businesses, Indigenous Peoples, youth, and international organisations. The enhanced transparency framework, agreements on future COP hosts, and the need for new nationally determined contributions were key outcomes, emphasising the urgency to implement the Paris Agreement and pursue a 1.5-degree world. The next critical milestones include establishing a new climate finance goal at COP29 and delivering comprehensive contributions aligned with the 1.5°C target at COP30(8).

(6) For more information see https://unfccc.int/sites/default/files/resource/cma2023_L17_adv.pdf.
(7) For more information see https://www.bbc.com/news/science-environment-67143989.
(8) For more information see https://unfccc.int/news/cop28-agreement-signals-beginning-of-the-end-of-the-fossil-fuel-era

Critics accuse COPs of "greenwashing," promoting climate credentials without substantial changes. Firstly, the choice of Dubai as conference host was controversial due to the UAE being a major oil producer, appointing the chief executive of the state-owned oil company as COP28 president. Furthermore, leaked documents revealed that the United Arab Emirates (UAE) planned to use its hosting role to discuss oil and gas deals with 15 nations. Such actions could compromise the impartiality expected of UNFCCC officers, potentially undermining trust and progress in addressing climate change. Additionally, some proposed projects conflict with the International Energy Agency's recommendation against developing new oil and gas fields to meet the 1.5°C target(9).

Secondly, the number of delegates associated with fossil fuel industries attending COP28 quadrupled compared to the previous year. Approximately 2,400 individuals linked to coal, oil, and gas companies are registered for COP28, surpassing the total attendance from the 10 countries most vulnerable to climate change. The significant increase is attributed, in part, to changes in registration requirements, mandating participants to disclose their employment details(10), nevertheless it is a worrying sign.

Industry experts often stress the positive aspects and the effectiveness of COP which include:

- **International Agreements**: COP meetings have led to significant international agreements, with the most notable being the Paris Agreement in 2015. The Paris Agreement set the goal of limiting global warming to “well below” 2 degrees Celsius above pre-industrial levels, with an aspirational target of limiting it to 1.5 degrees Celsius.
- **Nationally Determined Contributions** (**NDCs**): The Paris Agreement encouraged countries to submit NDCs, outlining their individual commitments to reducing greenhouse gas emissions. While the initial pledges are not sufficient to meet the Paris goals, the agreement established a framework for increasing ambition over time.

(9) For more information see https://www.bbc.com/news/science-environment-67508331.
(10) For more information see https://www.bbc.com/news/science-environment-67607289.

- **Financial Commitments**: COP meetings have resulted in financial commitments to support climate action, including the establishment of funds such as the Green Climate Fund (GCF) to assist developing countries in both mitigation and adaptation efforts.
- **Technology Transfer and Capacity Building**: COP discussions have emphasised the importance of technology transfer and capacity building, recognising the need for support to help developing countries transition to low-carbon and climate-resilient development.

However, there are also criticisms and challenges related to the COP including the topics listed below:

- **Ambition Gap**: One significant criticism is the "ambition gap" – the difference between the current level of commitments and what is required to achieve the temperature goals of the Paris Agreement. Many argue that the collective efforts outlined in NDCs fall short of what is needed to avert the worst impacts of climate change.
- **Implementation Challenges**: The effectiveness of COP is also questioned due to challenges in the implementation of agreed-upon measures. Some countries face difficulties in meeting their commitments, and there is a lack of enforcement mechanisms to hold nations accountable.
- **Political and Economic Interests**: The negotiation process can be influenced by political and economic interests, leading to delays or diluted agreements. Balancing the needs and priorities of diverse countries with varying levels of development can be a significant challenge.
- **Adaptation and Loss and Damage**: The issue of adaptation and addressing "loss and damage" due to the impacts of climate change remains a point of contention. Developing countries argue for more support in dealing with the effects they are already experiencing.

- **Role of Fossil Fuel Industries**: Some critics argue that the influence of fossil fuel industries in certain countries has hindered the adoption of more ambitious climate policies and commitments.

In summary, while COP meetings have been instrumental in bringing countries together to address climate change on a global scale, the effectiveness is measured by the outcomes and the subsequent actions taken by countries. The need for increased ambition, enhanced implementation, and addressing the unique challenges faced by different nations are ongoing concerns in the ongoing fight against the climate crisis. The success of COP ultimately depends on the collective will of the international community to translate agreements into concrete actions.

3. Effects of climate change on local communities

3.1 The cascading effects of climate change

We have already outlined the effects of climate change on local communities in chapter 1.

The main challenge is the cascading effects of climate change with balancing and reinforcing feedback loops. A good example are urban heat islands. A significant part of urban surfaces are covered with concrete and asphalt which store heat and create urban heat islands. There is good evidence that serious health problems and deaths can be attributed to these developments(11). These urban heat islands increase the need for air conditioning which in turn lead to higher energy needs which usually lead to higher greenhouse gas emissions.

The following figure shows the different feedback loops in the case of agriculture in Germany. Similar feedback loops can be drawn for fishing, tourism, housing or local infrastructure among others. It shows that no single measure can address all effects of climate change.

(11) Reviews of the literature usually give a good overview of the current knowledge and are a good starting point. For more information see Awais Piracha and Muhammad Tariq Chaudhary, "Urban Air Pollution, Urban Heat Island and Human Health: A Review of the Literature," Sustainability 14, no. 15 (January 2022): 9234, https://doi.org/10.3390/su14159234.

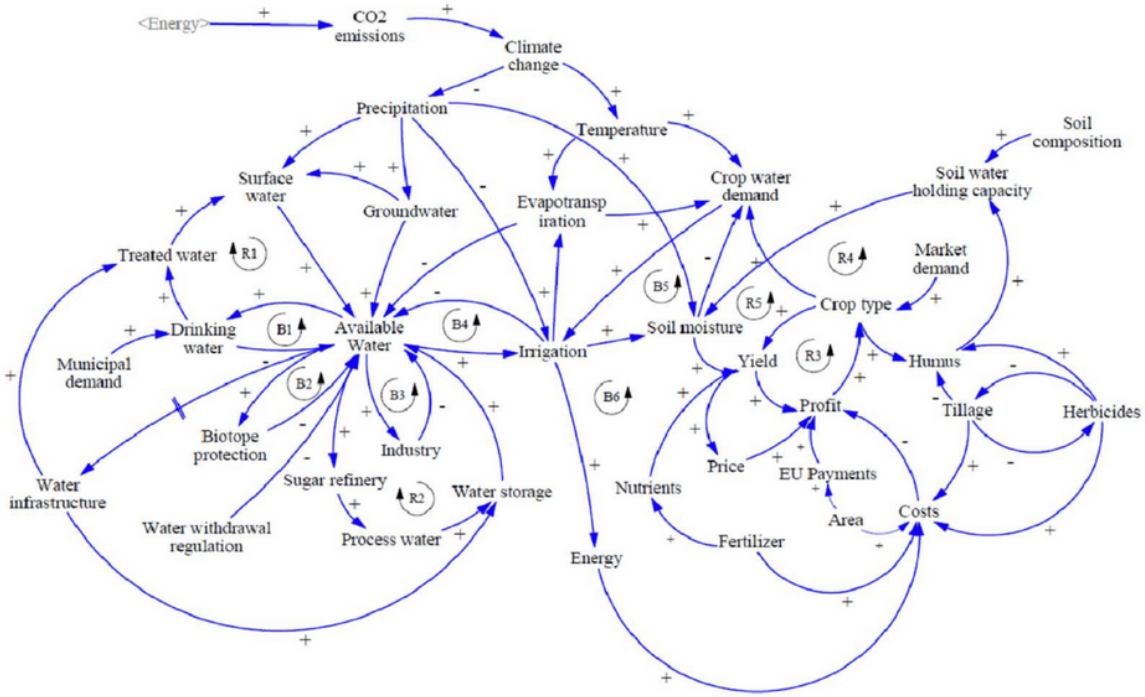

Figure 1: Cascading effects with balancing and reinforcing feedback loops(12)

(12) This figure was developed in the context of the German Agricultural Sector by Rodrigo Valencia Cotera, Sabine Egerer, and María Máñez Costa, "Identifying Strengths and Obstacles to Climate Change Adaptation in the German Agricultural Sector: A Group Model Building Approach," Sustainability 14, no. 4 (January 2022): 2370, https://doi.org/10.3390/su14042370.

3.2 Future Scenarios

Ethical banks and intermediaries should also consider the potential future scenarios. These scenarios of climate change depend on various factors, including the level of greenhouse gas emissions, societal responses, and the effectiveness of mitigation and adaptation measures.

Climate change projections are typically based on different emission scenarios developed by the IPCC. These scenarios represent a range of possible futures based on different assumptions about population growth, technological development, and policy choices. Some broad future scenarios are outlined below:

- **Rapid Mitigation Scenario**: In this scenario, there is a rapid and substantial reduction in greenhouse gas emissions, leading to a stabilisation of global temperatures. This would require significant global efforts to transition to renewable energy sources, enhance energy efficiency, and implement other mitigation strategies.
- **Business-as-Usual Scenario**: If current trends in greenhouse gas emissions continue without substantial mitigation efforts, temperatures are projected to rise significantly. This scenario could result in severe consequences, including more frequent and intense heatwaves, rising sea levels, and widespread ecological and societal impacts.
- **Delayed Action Scenario**: If there is a delay in implementing effective mitigation measures, but efforts are eventually taken to reduce emissions, the world may experience a slower rate of temperature increase compared to the business-as-usual scenario. However, the delay could still lead to significant impacts and challenges for adaptation.
- **High-End Emission Scenario**: If emissions continue to rise at an accelerated rate, surpassing current projections, the future climate may experience even more severe impacts. This scenario could lead to extreme weather events, widespread disruptions to ecosystems, and greater challenges for human societies to adapt.

It is important to note that these scenarios are not predictions but represent plausible futures based on certain assumptions. The actual trajectory of climate change will depend on future human actions, technological advancements, and policy decisions. Efforts to mitigate climate change, adapt to its impacts, and transition to a more sustainable and resilient future are crucial to shaping a more favourable outcome.

To conclude, the climate that we and future generations will encounter hinges on forthcoming emissions. Swiftly diminishing emissions will restrict additional alterations, yet sustained emissions will instigate more extensive and quicker changes, increasingly impacting all regions. Certain changes will endure for hundreds or even thousands of years, emphasising that decisions made today will carry enduring consequences(13).

3.3 Adaptation strategies

In a recent report titled "Climate Change 2022: Impacts, Adaptation, and Vulnerability" which was contributed by the Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, the following climate change adaptation strategies are proposed(14). The list shows the diversity of strategies to tackle the effects of climate change.

- **Climate-Resilient Infrastructure**: Designing and constructing infrastructure that can withstand the impacts of climate change, such as rising sea levels, increased heat, and extreme weather events.
- **Water Management and Conservation**: Implementing water conservation measures and efficient water management practices to address changing precipitation patterns and water availability.

(13) For more information see Change (IPCC), "Climate Change 2021 – The Physical Science Basis."
(14) These adaptation strategies are based on Hans-O. Pörtner et al., "Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change," 2022, https://publications.pik-potsdam.de/pubman/faces/ViewItemOverviewPage.jsp?itemId=item_26898.

- **Ecosystem Restoration**: Restoring and protecting natural ecosystems, such as wetlands and mangroves, which provide valuable services like flood control and habitat for biodiversity.
- **Early Warning Systems**: Developing and implementing early warning systems for extreme weather events, allowing communities to evacuate and prepare for disasters in advance.
- **Climate-Resilient Agriculture**: Introducing drought-resistant crops, improving irrigation systems, and implementing adaptive agricultural practices to enhance food security in the face of changing climate conditions.
- **Community Engagement and Education**: Engaging local communities in adaptation planning, providing education on climate risks, and promoting sustainable practices at the grassroots level.
- **Insurance and Risk Reduction**: Developing and expanding climate risk insurance mechanisms to help communities and businesses recover from climate-related losses.
- **Research and Innovation**: Investing in research and development to enhance understanding of climate impacts and develop innovative solutions for adaptation.

Ethical banks and intermediaries can focus on some of these measures as part of their climate finance strategy.

3.4 Financial instruments available

Banks and financial intermediaries have a central role in allocating capital to projects and companies that contribute to a reduction of greenhouse gas emissions. That means that they are providing capital to green companies but also restricting access to capital for those companies with a large carbon footprint.

The market for green lending is large and constantly developing in terms of standards. Some numbers might give a good impression(15). S&P Global Ratings estimates almost $1 trillion of green, social, sustainable, and sustainability-linked bonds will be issued this year. French banks reported that they have €216 billion of outstanding green and sustainable loans. It also seems that there is a valid business case. Researchers at University of Naples Parthenope and University of Dublin found that "a higher propensity to green lending is associated with lower profitability, more moderate default risk, and lower credit risk than banks with a less green investment approach"(16). In general, it is a large and growing market with an attractive impact and risk-profile.

The other large area is asset management. Asset managers usually have a mandate to follow ESG criteria and take different steps which are shown in the figure below.

Voting and engagement strategies entail engagement with the management as well as voting at the Annual General Meeting. It is seen as a signal to the management to take the non-financial preferences of their shareholders into account(17). The use of ESG screens means that asset managers favour companies with a more positive ESG profile. This leads to more capital for better companies and can also be seen as a signal for ESG laggards.

(15) See for more information https://www.spglobal.com/esg/insights/featured/special-editorial/global-sustainable-bonds-2023-issuance-to-exceed-900-billion, https://www.euronews.com/business/2023/11/30/french-banks-ploughing-billions-into-green-and-sustainable-loans

(16) Belinda L. Del Gaudio et al., "Syndicated Green Lending and Lead Bank Performance," Journal of International Financial Management & Accounting 33, no. 3 (2022): 412-27, https://doi.org/10.1111/jifm.12151.

(17) A theory was developed by Oliver Hart and Luigi Zingales, "Companies Should Maximize Shareholder Welfare Not Market Value," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, August 1, 2017), https://doi.org/10.2139/ssrn.3004794. It outlines a theory based on shareholder welfare maximization.

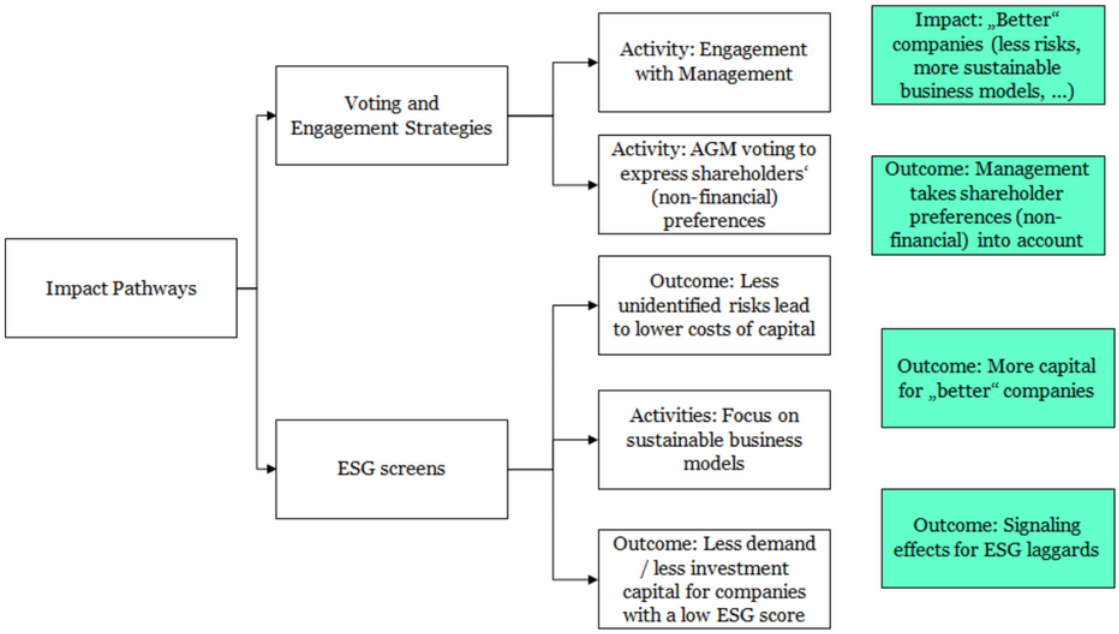

Figure 2: Impact pathways for asset management

Source: own illustration

4. Reduction of GHG emissions for ethical banks

4.1 Greenhouse Gas Emissions

Greenhouse gas emissions come from a variety of human activities and natural processes. The major greenhouse gases include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), fluorinated gases, and water vapour(18). While water vapour is a natural component of the atmosphere, the focus of climate change discussions is primarily on human-induced emissions of other greenhouse gases. Here are some key sources of these emissions and their contributions to climate change:

- **Burning of Fossil Fuels** (Coal, Oil, and Natural Gas): The combustion of fossil fuels for energy is a major source of CO2 emissions. Power plants, industrial facilities, and transportation (cars, trucks, aeroplanes) contribute significantly to these emissions.
- **Deforestation and Land Use Changes**: When forests are cleared for agriculture, logging, or other purposes, the carbon stored in trees is released as CO2. Additionally, the loss of forests reduces the Earth's capacity to absorb CO2 through photosynthesis.
- **Agriculture**: Livestock, particularly ruminants like cows, produce methane during digestion (enteric fermentation). Decomposition of manure in agricultural operations produces methane. Flooded rice paddies produce methane through anaerobic conditions in the soil.
- **Industrial Processes**: Certain industrial processes release synthetic gases like fluorinated gases that are potent greenhouse gases. The chemical transformation of limestone into cement releases CO2 as a byproduct.

(18) The literature also uses the term "Cumulative Carbon Dioxide (CO2) Emissions". Cumulative CO2 emissions represent the total net quantity of CO2 released into the atmosphere due to human activities. Given the nearly linear correlation between cumulative CO2 emissions and global surface temperature increases, understanding past and future CO2 emissions' impact on temperature relies on this metric. A related concept, the remaining carbon budget, quantifies the net CO2 that can be released in the future to maintain global warming at a specific level, considering contributions from non-CO2 forcers. The remaining carbon budget is determined from a recent specified date, whereas the total carbon budget starts from the pre-industrial era.

- **Waste Management**: The decomposition of organic waste in landfills produces methane. Biological processes in wastewater treatment plants generate methane and nitrous oxide.
- **Transportation**: Combustion engines in cars, trucks, ships, and aeroplanes release CO2 and other pollutants. Methane emissions occur during the extraction and transport of fossil fuels.

These greenhouse gases trap heat in the Earth's atmosphere, leading to the greenhouse effect. While some level of greenhouse gases is necessary for maintaining a habitable temperature on Earth, human activities have significantly increased their concentrations, enhancing the natural greenhouse effect. This enhanced warming contributes to climate change by causing a rise in global temperatures, leading to various environmental impacts such as sea level rise, extreme weather events, and disruptions to ecosystems. Reducing greenhouse gas emissions is crucial to mitigating the severity of climate change and its associated consequences. International agreements, policies, and individual efforts are essential in addressing the root causes of these emissions and transitioning to more sustainable practices.

4.2 Mitigation strategies

Global strategies to mitigate and adapt to climate change involve a combination of international agreements, national policies, technological innovations, and community-level actions. Below are key strategies in both mitigation and adaptation efforts. The ultimate goal is Net Zero CO2 Emissions(19).

Climate change mitigation strategies include the following(20):

(19) Net zero CO2 emissions occur when the amount of CO2 released into the atmosphere by human activities equals the amount removed over a specified time frame. Net negative CO2 emissions arise when anthropogenic removals surpass emissions.
(20) These strategies are based on the following report IPCC Climate Change, "Mitigation of Climate Change," Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (2022).

- **Transition to Renewable Energy**: Promoting the use of renewable energy sources, such as solar, wind, hydro, and geothermal power, to reduce reliance on fossil fuels and decrease greenhouse gas emissions from energy production.
- **Energy Efficiency**: Implementing energy efficiency measures in industries, buildings, and transportation to reduce overall energy consumption and lower associated emissions.
- **Afforestation and Reforestation**: Planting trees (reforestation) and establishing new forests (afforestation) to absorb carbon dioxide from the atmosphere, enhancing carbon sequestration.
- **Sustainable Agriculture**: Encouraging sustainable agricultural practices, including precision farming, agroforestry, and organic farming, to reduce emissions from the agricultural sector.
- **Carbon Capture and Storage (CCS)**: Developing and deploying technologies that capture carbon dioxide emissions from industrial processes and power plants, preventing them from entering the atmosphere.
- **Promoting Sustainable Transportation**: Investing in public transportation, electric vehicles, and alternative fuels to reduce emissions from the transportation sector.
- **International Agreements**: Participation in international agreements and treaties, such as the Paris Agreement, where countries commit to specific emission reduction targets and collaborative efforts to address climate change collectively.

4.3 Reduction pathways

There are different strategies such as the ones outlined above. In general, there are positive developments such as in the case of the share of renewable energy in gross final energy consumption across the European Union and some selected countries. Although the share has increased, there is still plenty of potential to improve the energy mix across the European Union that needs additional funding to be achieved.

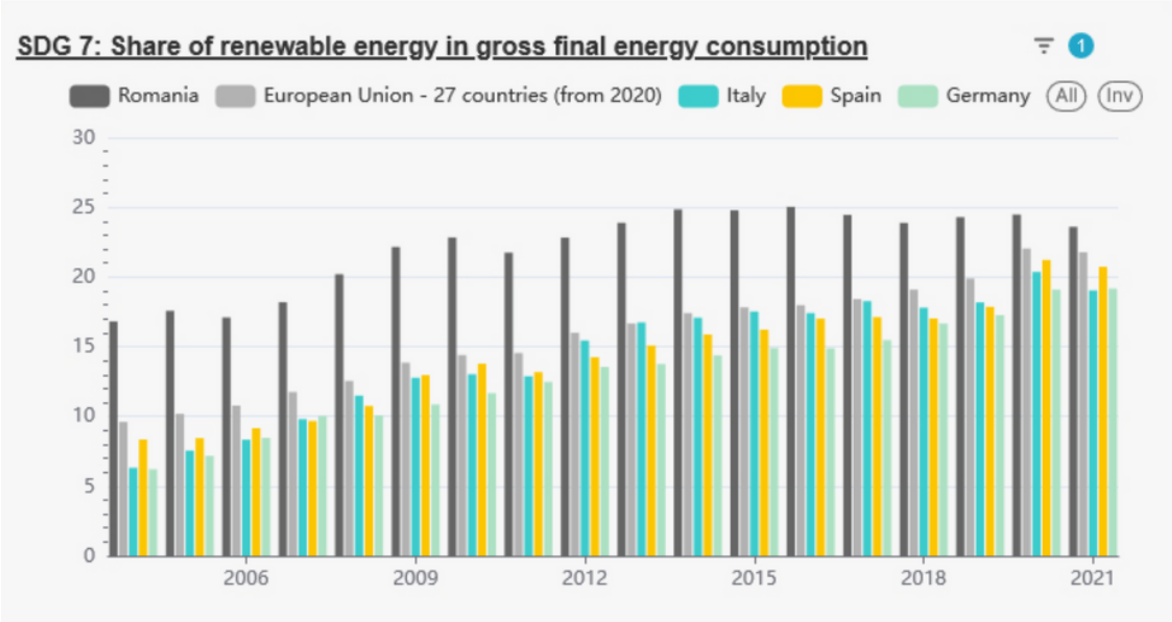

Figure 3: Share of renewable energy in gross final energy consumption

Source: Eurostat(21), own illustration

We can also consider a few examples in the housing sector. Typical improvements include the installation of charging stations for electric cars, the installation of solar panels and house improvement measures. The installation of charging stations leads to a higher use of electric cars which help to reduce overall GHG emissions in the mobility sector.

(21) The indicator measures the share of renewable energy consumption in gross final energy consumption according to the Renewable Energy Directive. The gross final energy consumption is the energy used by end-consumers (final energy consumption) plus grid losses and self-consumption of power plants.

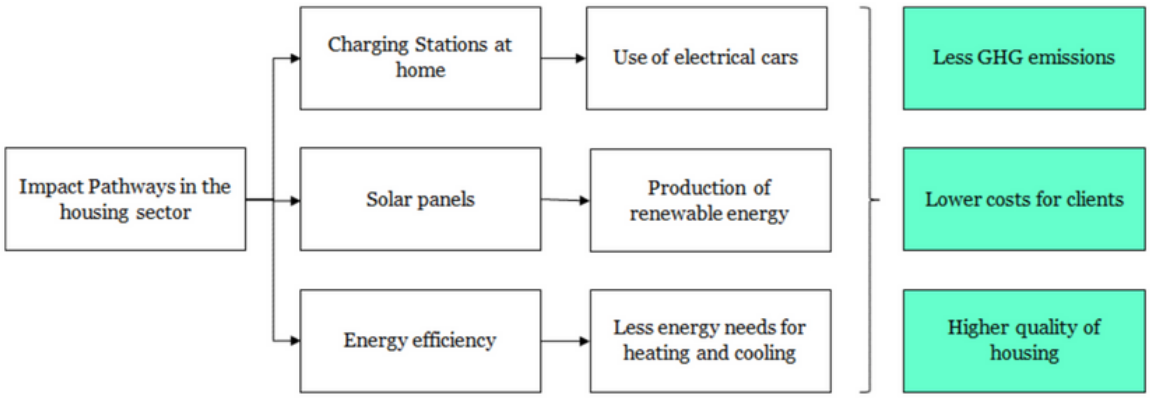

Figure 3: Impact pathways in the housing sector

Source: own illustration

It should also be added that there are countless opportunities there models of the social economy can be used to reduce GHG emissions. Examples are food banks, ugly fruits initiatives or energy cooperatives.

5. Regulatory changes

The future of regulations on climate change is expected to involve increasingly ambitious measures at the national, European, and international levels.

On a national level we should expect to see the following changes:

- **Enhanced Climate Policies**: Many countries are expected to strengthen their climate policies and regulations to align with international climate goals, especially those outlined in agreements like the Paris Agreement. This may involve setting more ambitious emission reduction targets, adopting renewable energy targets, and implementing stricter regulations on carbon-intensive industries.
- **Carbon Pricing**: The adoption of carbon pricing mechanisms, such as carbon taxes or cap-and-trade systems, may become more prevalent as countries seek effective ways to incentivise emission reductions and drive the transition to a low-carbon economy.
- **Renewable Energy Targets**: Expectations include the continuation of efforts to increase the share of renewable energy in national energy portfolios. Governments may introduce or expand incentives for renewable energy projects and set targets for the phase-out of fossil fuel-based energy sources.

On a European level, we can expect to see the following changes:

- **European Green Deal**: The European Union's (EU) commitment to the European Green Deal, which aims to make the EU climate-neutral by 2050, is expected to result in more comprehensive and stringent climate regulations. This includes policies addressing energy, transport, agriculture, and other sectors.
- **Fit for 55 Package**: The EU's "Fit for 55" package, introduced to achieve a 55% reduction in greenhouse gas emissions by 2030, is likely to drive additional regulations. This may involve reforms to existing policies and the introduction of new measures to align with the increased emissions reduction target.

- **Circular Economy Initiatives**: The EU is expected to continue promoting circular economy initiatives to reduce waste and promote sustainable resource use, contributing to broader climate and environmental goals.

On an international level, we can expect to see the following changes:

- **Global Climate Agreements**: Expectations include ongoing efforts to strengthen global climate agreements. Future COP meetings, such as COP29 and beyond, will likely focus on increasing ambition, addressing gaps in climate finance, and fostering international cooperation.
- **Carbon Border Adjustment Mechanisms** (**CBAM**): Discussions around carbon border adjustment mechanisms, which aim to prevent carbon leakage by taxing imports from countries with lower environmental standards, may gain traction. This would have implications for international trade and may be a topic of negotiation.
- **Financial Support for Developing Countries**: The international community is expected to continue discussions on providing financial support to developing countries for both mitigation and adaptation. This includes meeting the commitment to mobilise investment capital, as outlined in the Paris Agreement.
- **Global Efforts on Biodiversity**: Climate change regulations are increasingly intertwined with efforts to address biodiversity loss. Expectations include international agreements and initiatives that recognize the interconnectedness of climate and biodiversity goals.

6. Conclusion

This paper explored the relevance of climate change for ethical banks and intermediaries. One of the main objectives of this paper was to provide an overview of the scientific base to understand climate change as a complex, multifaceted phenomenon with long term consequences. Secondly, it described some actions that can be taken to adapt and mitigate climate change.

The document also highlighted that international agreements and regulations can be effective, however they need to be integrated and coordinated with local and national actors. COP is an important process that is currently leading the efforts on a global scale, however its track record is chequered at best. It is this flawed but necessary interplay between actors at various levels that will provide the response to the challenges ahead.

To summarise, ethical banking and finance are well positioned to provide answers to the funding needs to finance climate change adaptation and mitigation actions as they are deeply embedded in their local communities, and they fund projects with a social or environmental value. It is important that additional funding be unlocked to accelerate the transition to a more sustainable and equitable future for present and future generations.

References

- Change, IPCC Climate. "Mitigation of Climate Change." Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change 1454 (2014): 147.
- Change (IPCC), Intergovernmental Panel on Climate. "Climate Change 2021 – The Physical Science Basis: Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change." Cambridge Core. Cambridge University Press, June 2023. https://doi.org/10.1017/9781009157896.
- Del Gaudio, Belinda L., Daniele Previtali, Gabriele Sampagnaro, Vincenzo Verdoliva, and Samuel Vigne. "Syndicated Green Lending and Lead Bank Performance." Journal of International Financial Management & Accounting 33, no. 3 (2022): 412–27. https://doi.org/10.1111/jifm.12151.
- Hart, Oliver, and Luigi Zingales. "Companies Should Maximize Shareholder Welfare Not Market Value." SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, August 1, 2017. https://doi.org/10.2139/ssrn.3004794.
- Piracha, Awais, and Muhammad Tariq Chaudhary. "Urban Air Pollution, Urban Heat Island and Human Health: A Review of the Literature." Sustainability 14, no. 15 (January 2022): 9234. https://doi.org/10.3390/su14159234.
- Pörtner, Hans-O., Debra C. Roberts, Helen Adams, Carolina Adler, Paulina Aldunce, Elham Ali, Rawshan Ara Begum, Richard Betts, Rachel Bezner Kerr, and Robbert Biesbroek. "Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change," 2022. https://publications.pik-potsdam.de/pubman/faces/ViewItemOverviewPage.jsp?itemId=item_26898.
- Valencia Cotera, Rodrigo, Sabine Egerer, and María Máñez Costa. "Identifying Strengths and Obstacles to Climate Change Adaptation in the German Agricultural Sector: A Group Model Building Approach." Sustainability 14, no. 4 (January 2022): 2370. https://doi.org/10.3390/su14042370.

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FEBEA - the European Federation of Ethical and Alternative Banks and Financiers - is a non-profit association based in Brussels. It gathers 33 financial institutions whose aim is to finance social and solidarity economy (SSE) and projects with social, environmental and cultural value in 17 European countries, serving more than 700,000 people.

Its objective is to support the exchange of experiences and promote cooperation between social economy and social finance practitioners.

Each FEBEA member is integrated in the SSE Sector in its country, focusing on mobilising savings and equity from responsible citizens and using these funds to finance sustainable development and local communities. FEBEA is member of GECES, the European Commission's expert Group on Social Economy and Social Entrepreneurship and of Social Economy Europe, the main European network of social economy practitioners.

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