Emerging Market Real Economy Sustainable Bonds – current and potential issuance: Volume II

Country focus: Poland, Romania, Türkiye, Kazakhstan, Pakistan, Uzbekistan Sector analysis: Power, Agribusiness, Transport







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This research is the collaboration between IFC and Environmental Finance under the Technical Assistance Facility (TAF) managed by IFC and funded by the HSBC Global Asset Management and the Dutch Ministry of Foreign Affairs. The TAF was set up in September 2020 with the objective to support the supply side of Green/Sustainability Bond markets, especially in Africa, Eastern Europe, Central Asia, and Middle East. HSBC and IFC together with other DFIs and institutional investors established the Real Economy Green Investment Opportunity (REGIO) Fund, which closed in March 2021 with total investor commitment of \$538 million. REGIO is the first global green bond fund focused on well-diversified climate-smart investments in "real economy" issuers in emerging markets countries. The Fund aims to help emerging economies in their transition to low carbon future by increasing access to climate finance and promoting the development of sustainable capital markets.

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Acknowledgements

This report was supported by the TAF managed by IFC in an effort to expand emerging market real sector green bond supply. This research publication was prepared under the overall guidance of Manuela Adl (Senior Manager) and Dan Goldblum (Manager). It was led by Tony Gibson, Ben Smith, and Guy Richardson from *Environmental Finance* and Quyen Thuc Nguyen (Senior Industry Specialist) and Roshin Mathai Joseph (Senior Results Measurement Specialist) from IFC. The authors of this research express special appreciation to the following colleagues for their valuable contributions and peer review - Andrew Beath, Carine Nasr ep Azkoul, Honorata Ewelina Fijalka, Hiba Haider Zaidi, Jeanne Massé, Kiryl Haiduk, Mariya Maerkova, Martin Dasek, Pablo Andres Salas Bravo, Yang Li, Yavar Moini.



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Abbreviations and acronyms

СОР	Conference of the Parties (United Nations Climate Change Conference)	ICMA IFC	International Capital Markets Association International Finance Corporation
DM	Developed Markets	IMF	International Monetary Fund
EBRD	European Bank for Reconstruction and	NDC	Nationally Determined Contributions
FCO		PPP	Public Private Partnership
EGO	Emerging Green One	RE	Real Economy
EM	Emerging Markets	REGIO	Real Economy Green Investment
ESG	Environmental, Social, Governance		Opportunity Fund
EV	Electric Vehicles	SDGs	Sustainable Development Goals
FDI	Foreign Direct Investment	SLB	Sustainability-linked bond
FAO	Food and Agriculture Organisation of the	SME	Small and Medium-sized Enterprises
	United Nations	TAF	Technical Assistance Facility
GDP	Gross Domestic Product	ТАР	Technical Assistance Program
GSSS bonds	Green, Social, Sustainability, Sustainability- linked bonds		



Executive summary

he challenging market environment of 2022, including geopolitical conflicts and high inflation, saw the overall number of sustainable bonds¹ issued decline year-on-year for the first time in a decade, falling from the record high of \$1.03trn (trillion) in 2021 to \$890bn (billion) in 2022. However, sustainable bonds' share of the overall fixed income market grew to 13.7% in 2022, up from 11.8% in 2021.

Notably, real economy² issuers have increased their share of sustainable bond issuance to 49% in 2022 up from 37% in 2021.

The six focus countries Kazakhstan, Pakistan, Poland, Romania, Türkiye, Uzbekistan have issued 59 bonds worth almost \$21bn. The three largest countries analysed – Poland, Romania and Türkiye – were responsible for 50 of the 59 bonds. There have been six Kazakhstani sustainable bonds, two of which were from a real economy issuer; the only Pakistani sustainable bond is from a real economy issuer and the only sustainable bond issued from Uzbekistan is a sovereign bond.

20 of the 59 bonds (34%) were from real economy issuers worth a total of \$6.7bn, with 33 bonds from financial institutions (\$6.4bn) and 6 from sovereign bonds (\$7.7bn). There are challenges and opportunities in each country for future sustainable bond issuance.

Globally real economy sustainable bond issuers are active in the three focus sectors of power, agribusiness, and transport:

Power – 1,090 bonds with a value of \$433bn Agribusiness – 122 bonds with a value of \$45bn Transport – 480 bonds with a value of \$162bn The three focus sectors are crucial to the development of emerging market economies and sustainable bond issuance could play a key role in financing sustainability and growth. There are projects which could be eligible for sustainable bond issuance with clear sustainable use of proceeds in each sector.

The high potential for sustainable bond issuance in each country and sector is supported by encouraging government policies and high global appetite for sustainable bonds amongst investors but tempered by systemic and structural sector and capital market challenges.

On the supply side, the fragmented nature of the agribusiness sector and the dominance of public companies in the power and transport sectors reduces the number of real economy companies with eligible projects large enough to warrant sustainable bond issuance.

On the demand side, sustainable bond investors are commonly large institutional investors with low tolerance for risk, high bond size expectations and strict fiduciary duties which decrease the appeal of emerging market, real economy sustainable bonds.

There are additional challenges for prospective emerging market real economy issuers surrounding bond currency, market liquidity, reporting infrastructure, project availability, and human capital and sustainable debt knowledge gaps.

¹ Sustainable bonds are all labelled green, social, sustainability, sustainability-linked, and transition bonds

² Real economy companies are defined as companies directly involved in a sector - I.e., corporations or government agencies. It does not include government ministries/departments, municipalities, or financial institutions. Sustainable bonds include all bonds labelled green, social, sustainability, sustainability-linked and transition.



Introduction

his report will examine the potential for sustainable bond issuance in six countries focussing on three key sectors. The structure of this report is as follows:

The report begins with this introductory chapter outlining the scope of the report and the wider market context. This is followed by three sector benchmark chapters examining each target sector on a global scale. These chapters are structured to provide an overview of the sector make up, sustainability drives in the sector and emerging market (EM) unlabelled (vanilla) fixed income debt. There are deep dives into sustainable bond issuance assessing total market size, region, issuer type, and top issuers with focus on emerging market potential. There will be brief insights into alternate sustainable debt such as green and sustainability-linked loans and the outlook for sustainable bond issuance in each sector.

Finally, there are six country analysis chapters. The structure of each country analysis begins with a brief overview of the macro-economic situation, a summary of regulations and government policy regarding sustainable debt or sustainability targets and details on any sustainable bond issuance. Each country sector summary provides an overview of the sector and sector structure, a list of leading companies, total bond issuance in the sector - both sustainable and unlabelled vanilla - and a conclusion on the outlook for sustainable bond issuance in the country sector.

Emerging markets

This report focuses on the potential for sustainable bond issuance in emerging markets. There is analysis of 6 emerging market countries: Kazakhstan, Pakistan, Poland, Romania, Türkiye, Uzbekistan with macro financial market and sector assessment.

Emerging market issuers make up approximately 12% of all³ sustainable bonds issued (by number of issuances).⁴ However, emerging markets are arguably in most need of capital for sustainable development and many emerging market countries are vulnerable to the effects of climate change.

China dominates emerging market sustainable bond issuance, accounting for 45% of the total number of bonds issued and 47% of the value of bonds.

Regional breakdown of sustainable bonds issuance

Europe is the leading region for sustainable bond issuance globally at 44% of issuance in 2022 followed by Asia (19%) and North America (17%).

Table 1: Share of 2022 sustainable bond issuance by region

Region	Share of issuance value		
	2022	2021	
Europe	43.80%	45.63%	
Asia	18.59%	16.41%	
North America	16.94%	15.17%	
Supranational⁵	15.33%	15.86%	
Central America	0.97%	1.12%	
Oceania	1.25%	1.01%	
Middle East	0.72%	0.94%	
South America	2.13%	3.41%	
Africa	0.22%	0.33%	
The Caribbean	0.04%	0.12%	

Source: Environmental Finance Data

Real economy

This report will concentrate on the current and potential market for "real economy" issuers, namely private corporate and government agency issuers in emerging markets.

Figure 1 shows global sustainable bond issuance by issuer type in 2022. There has been an overall increase in real economy issuance, by value of bonds issued. Real

³ Unless otherwise stated all data ranges from the first sustainable bond issued

in 2007 to end of Q1 2023 (31/03/23)

⁴ Source - Environmental Finance Data

⁵ A supranational bond issuer is an international organization established by two or more countries to promote economic and social development, and which issues sustainable bonds to finance certain activities





Figure 2: Year-on-year Global Sustainable Bond Issuance - label



Sustainable bonds

Bonds offer investors relatively stable, lower risk returns, and long-term maturities. This makes bonds attractive to institutional investors and suitable for the financing or refinancing of large-scale projects.

The term "sustainable bonds" encompasses bonds that are labelled green, social, sustainability or sustainability-linked, collectively referred to as GSSS bonds. There is also a "transition bond" label within sustainable bonds, which can provide access to sustainable finance for carbon intensive sectors and organizations. Transition labelled bonds are not universally accepted by sustainable investors due to concerns of greenwashing and there have been relatively few issued (41 bonds between 2017- Q1 2023).⁶

Green, social, sustainability and transition bonds follow the use of proceeds structure where the capital raised in the bond has specific uses outlined that align with green or social projects (sustainability bonds have a mix of green and social use of proceeds).

Sustainability-linked bonds follow a different structure; there are not specific use of proceeds for the funds raised, they can be used for any general corporate purposes. Instead, the issuer commits to a key performance indicator (KPI) for the company's overall sustainability performance. These KPIs can be very specific to a company, covering a wide array of sustainability indicators. There can be multiple KPIs per bond, the most common usually involve a set reduction in carbon or GHG emissions or achieving a certain score or ranking from an ESG rating agency. There are scheduled coupon rate step-ups or step-downs based on whether the KPI is fulfilled or not.

Both green bonds and sustainability-linked bonds can have transition labels if they demonstrate verifiable alignment with credible transition pathways.

Whilst making sustainable finance more accessible to different sectors and companies; sustainability-linked bonds are not universally accepted by sustainable investors. There are concerns that the structure allows too much room for greenwashing if the KPIs are not ambitious enough or represent business as usual. The lack of transparency surrounding the use of proceeds in the sustainability-linked bond format could lead to the funds being used for non-sustainable activities.

The International Capital Markets Association (ICMA) provides principles for green, social, sustainability and sustainability-linked bonds. In addition, ICMA also publishes the transition finance handbook. These are voluntary process guidelines which around 97% of all GSSS bonds are aligned to. The principles provide information for issuers regarding the issuance, appropriate use of proceeds, and impact reporting. Alignment to the principles provide investors with some reassurance that the bond is sustainable, and that impact or allocation reporting will be followed.

6 Source: Environmental Finance Data

7 Sustainable Finance, ICMA, Accessed April 2023

economy issuers have increased their share of sustainable bond issuance to 49% in 2022, up from 37% in 2021.

Sustainable bonds

The challenging geopolitical and inflation market environment of 2022 saw the overall number of sustainable bonds issued decline year-on-year for the first time in a decade, falling from a record high of \$1.03trn (trillion) in 2021 to \$890bn in 2022. However, sustainable bonds' share of the overall fixed income market grew to 13.7% in 2022, up from 11.8% in 2021.8

As outlined in figure 2, most sustainable bond issuances were labelled green but social and sustainability-linked bonds have grown and maintained their market share.

The sustainable bond market is predicted to return to growth in 2023 amid increasing government and investor focus on funding sustainable development and transition and improving international financial fundamentals, lower inflationary pressures, and greater



Figure 3: EM and DM Sustainable Bonds - issuance and value





investor confidence. *Environmental Finance Data* modelling predicts that the market will grow to around \$990bn in 2023. Already, Q1 2023 sustainable bond issuance has reached \$260bn – up from \$225bn in Q1 2022 – which would seem to support this prediction⁹.

Green bonds were the most common sustainable bond issued in emerging markets, representing 75% by number of bonds and 71% by value.

Sustainability-linked bonds have emerged as viable sustainable instruments for many emerging market issuers with an all-time total of 83 bonds worth \$43bn.

Emerging market real economy sustainable bond issuance

Real economy issuers represent around 57% of emerging market sustainable bonds by number of bonds and 41% by value of bonds.

In developed markets, real economy issuers represent 82% by number of bonds and 65% by value of bonds.

Challenges of emerging market sustainable bond issuance

There is a lot of potential for sustainable bond issuance in emerging markets, with a well-documented need for investment in large scale sustainable development and encouraging government sustainability policies and targets.¹⁰ There are also significant barriers to real economy sustainable bond issuance in emerging markets:

- Underdeveloped capital markets and regulatory frameworks hampers the issuance of sustainable bonds and appetite of sustainable investors.
- Currency and interest rate risk issuers in emerging markets, particularly the MENA region, Central Asia, and Sub-Saharan Africa, tend to issue bonds in local currencies. International investors have shown preference for bonds in mainstream currencies such as Euros and US Dollars for stability. The tumultuous debt market and interest rate conditions seen in 2022 has further exacerbated this challenge.
- **Liquidity** the high liquidity in emerging market private companies makes traditional loans more

attractive than issuing bonds as they are shorter term, more straightforward to raise. Conversely, the low liquidity in emerging market fixed income markets also present challenges for investors.

- Human capital and knowledge gap the issuance and reporting of sustainable bond allocation and impact requires a level of market knowledge at board level and beyond.
- Government dominance of sustainable sectors and bond issuance – sustainable bonds require eligible projects of a certain size for green and social use of proceeds. In emerging markets, projects that fulfil these criteria are less common and dominated by government agencies and affiliate companies, limiting real economy company involvement. Sustainable bonds are regularly used for refinancing of sustainable projects; the relative lack of existing private sector sustainable projects in EM also reduces the potential for sustainable bond issuance.
- Data and impact reporting infrastructure the post issuance requirements of sustainable bonds put the onus on issuers to provide impact and proceeds allocation reports. Impact reports require strong internal data infrastructure which many emerging market corporates do not currently have.
- **Risk averse investors** many of the investors in sustainable bonds are large institutional investors such as pension funds and insurers. These investors have a fiduciary duty and a low risk tolerance for their investments, making emerging market issuers with lower credit ratings less attractive. The geopolitical events, prominent debt defaults, and high interest and inflation have further diminished investor appetite for risk.

Large-scale institutional investors also manage multibillion-dollar portfolios and tend to invest in larger sized bonds which are not commonly feasible for most EM real economy issuers.

Supporting EM sustainable bond issuance

The development of emerging market focussed funds such as the IFC supported Amundi Emerging Green One (EGO) and HSBC Real Economy Green Investment Opportunity (REGIO) – as well as funds from Blackrock and KfW – offer some support for the challenges facing potential emerging market sustainable bond issuers. Sustainable bond funds can offer issuers guidance and support on issuance and reporting. They

⁹ Source: Environmental Finance Data

¹⁰ Emerging market sustainable bond outlook remains constructive despite market headwinds, Moody's, Accessed April 2023

also provide investors with emerging market exposure, do the due diligence and research legwork in selecting and verifying issuers and bonds, and can effectively identify investment opportunities appropriate in size for largescale investors. governments have set out sustainable frameworks for bond issuance and ambitious sustainable goals which sustainable bonds could fund.

Sectors

Funds are also able to provide credit enhancement mechanisms to offer the investment grade of BBB+ to its investors, despite holding bonds with a lower credit rating.

There are also Technical Assistance Programs and Facilities (TAP/Fs) which are helping bridge sustainable finance knowledge gaps for emerging market real economy issuers and providing support for the creation of sustainable bond frameworks, issuance, and reporting. There is great potential in emerging markets for sustainable bond issuance. Many emerging market This report will focus on three key sectors for sustainable bond issuance, namely power, transport and agribusiness. These sectors are key to many emerging market economies and involve projects that could be eligible for sustainable bond issuance.

There are clear use of proceeds linked to the power and transport sectors. In 2022 renewable energy (\$130bn) and clean transportation (\$89bn) were the two most popular (or most allocated) use of proceeds in sustainable bond issuance (see figure 5).

Figure 5: Sustainable bonds use of proceeds in 2022 - value



Methodology: the value of bonds with multiple use of proceeds was pro rated equally to each use of proceed.



Figure 6: Sustainable bonds use of proceeds in 2022 - value

Source: Environmental Finance Sustainable Bond Insight 2023

Food security (\$6bn), terrestrial and aquatic biodiversity conservation, job creation, sustainable management of living natural resources and sustainable water management can all be applied to the agribusiness sector.

There is a strong alignment of sustainable bond use of proceeds with the United Nations Sustainable Development Goals (UN SDGs), especially those related to the power and transportation sectors.

The top 3 most funded SDGs in 2022 - which included

Goal 11: Sustainable cities and communities, Goal 7: Affordable and clean energy, and Goal 13: Climate action.

Goal 2: No hunger was one of the least well-funded goals and has a lot of potential for further allocation. Green projects in the agribusiness sector can be highly relevant to this SDG.

The current and potential markets for each sector are examined in the global sector benchmark chapters.



Power

Sector make up

Against a backdrop of geopolitical instability and global economic slowdown, global demand for electricity in 2022 was resilient, increasing 2% compared to the average of 2.4% for the period 2015-2019.¹¹

Analysis carried out by the International Energy Agency (IEA) under its Stated Policies Scenario (STEP) framework – a benchmark that assumes that not all governments will reach announced goals – predicts that the overall rise in global energy demand of 1% each year to 2030 will be met by a corresponding increase in global generation from renewables.¹² Nevertheless, some emerging markets such as India are expected to continue to increase their energy consumption across a broader range of sources to 2030, including fossil fuels.¹³

Since 2022, Russia's invasion of Ukraine has created an international energy crisis, with gas prices in particular reaching record highs that have contributed to soaring inflation. This spike in costs accounts for 90% of the rise in the average costs of electricity generation globally, while the price of renewables and carbon dioxide have played a marginal role.¹⁴ The result has been particularly pronounced in the European Union, which saw a year-on-year decrease in electricity consumption of 3.5% in 2022.¹⁵

Although the short-to-medium term outlook remains uncertain, the global system remains highly vulnerable to long-term supply chain disruption and geopolitical turmoil. Both strands of the current crisis have been enough to strengthen European resolve to pursue energy independence, such as by investing in renewables rather than hydrocarbons sourced from Russia. The potential cost advantages of renewables are further enhanced by government support, such as the Inflation Reduction Act in the United States and the EU Green Deal.

In 2022 record droughts diminished the generation potential of hydropower facilities in some regions while in the European Union, nuclear generation decreased year-on-year by 17% due to closures and the unavailability

of nuclear power plants.¹⁶ The crisis boosted the use of conventional gas-fired generation in Europe to meet demand for cheaper alternatives to high-priced gas. The result has been growth in carbon emissions from EU power generation of 4.5% – the highest year-on-year increase since the oil crisis of the 1970s.¹⁷

The IEA anticipates a diminished role for the Russian energy sector in the global economy, with the country's share of internationally traded gas falling from 30% in 2021 to 15% by 2030.¹⁸ Meanwhile the IEA expects that global demand for coal will peak in the mid-2030s, with the share of fossil fuels in the global energy mix falling from 80% today to just over 60% by the middle of the century. ¹⁹

Sustainability and power

The power sector is responsible for both the production and transmission of energy and accounts for the largest share of carbon emissions globally. The sector therefore has a key part to play in the transition to a greener society, with the role of electricity set to expand as the adoption of more climate-friendly modes of powering the economy gathers pace.

The greening of the power sector is necessary to ensure that the roll-out of new technologies in transport and heating, such as electric vehicles (EVs) and heat pumps, are environmentally friendly; both have the potential to drastically reduce emissions and improve energy efficiency. These factors contribute to the International Energy Agency (IEA)'s Net Zero Emissions (NZE) scenario, which assumes that if net zero emissions targets are met, electricity will increase from 20% of the current global energy consumption to 50% by 2050.²⁰

In many countries the power sector leads the way in implementing net zero strategies, embracing renewable sources of electricity like solar, wind and hydropower. Yet, the precarious position of the energy sector is partly due to chronic underinvestment, which has left the sector unprepared for the kind of shocks witnessed in 2022 following Russia's invasion of Ukraine. To stay

¹¹ Electricity Market Report 2023, International Energy Agency, February 2023

^{12, 13, 14} World Energy Outlook 2022, International Energy Agency, October 2022

¹⁵ Electricity Market Report 2023, International Energy Agency, February 2023

^{16, 17} Electricity Market Report 2023, International Energy Agency, February 2023

^{18, 19, 20} World Energy Outlook 2022, International Energy Agency, October 2022

on track to reach net zero by 2050 will require major investment in clean energy, including tripling spending on clean energy and infrastructure by 2030.²¹

Economic and price pressures affecting the power sector mean that the number of people without access to modern forms of energy is rising for the first time in a decade, with some 75 million people who recently gained access to electricity likely to become unable to afford it.²² Approximately 100 million people may revert to using traditional biomass for essential tasks such as cooking.²³

Power sector sustainable debt

Owing to the key role they play in greening the energy system, companies in the power sector rank among the largest issuers of sustainable debt. The scale and frequency of sustainable debt issued by companies in the power sector reflects the high cost of the infrastructure projects required to enable the transition to greener ways of generating electricity.

Indeed, these companies' frequent involvement in renewable energy in particular means they have a ready stream of projects that neatly align with strict green use of proceeds criteria. Yet, the number of sustainable bonds with renewable energy use of proceeds far exceeds the number of sustainable bonds issued directly by power sector-specific companies. This is due to use of proceeds commitments among other issuers to implement measures such as installing on-site renewable energy generation, or to source larger quantities of power from renewable sources that can include third parties.

The green label dominates among power sector-specific issuers, accounting for 985/1090 of sustainable bonds issued by the sector since 2007. Despite being relatively less well-established as an instrument type, sustainabilitylinked bonds make up the second most frequent label among power sector-specific issuers of sustainable debt, followed by sustainability bonds and transition bonds. Unsurprisingly given the predominance of green use of proceeds among power sector issuers, social bonds make up a tiny proportion of power sector-specific issuance, with just five power sector social bonds recorded.

Table 2: Power sector specific – sustainable bonds

Sustainable bond label	Number of bonds	Value (\$m)	Y-o-y growth (value) ²⁴
Green	985	361,915	+45%
Social	5	2,486	+26%
Sustainability	26	12,572	+91%
Sustainability-linked	50	48,841	+64%
Transition	24	7,466	+43%
Total	1,090	433,279	

Source: Environmental Finance Data

When it comes to issuance by power sector-specific entities in the real economy, this is limited to corporate and government agency issuers. Corporates far outweigh agencies in terms of issuance and are responsible for the greatest share of growth among real economy powerspecific entities. The presence of government agencies in this category nevertheless reflects the strong involvement of state-owned enterprises and agencies in promoting sustainability in the power sector

Table 3: Power sector specific real economysustainable bonds

Issuer type	Number of bonds	Value (\$m)	Y-o-y growth (value)
Agency	27	10,319	+15%
Corporate	1049	420,087	+50%

Source: Environmental Finance Data

The distribution of issuance across labels shows some recent changes. Although the sector's sustainable issuance has grown across all labels and continues to be dominated by green bonds, it is the power sector's sustainability bonds that have seen the fastest year-onyear increases. This comes amid growing awareness of the social impact that comes from better access to power and the impact the sector can have on communities.

Similarly, year-on-year growth of sustainability-linked bonds issued by the power sector is greater than that of green bonds. This reflects the relevance of the KPI structure of sustainability-linked bonds to high emitting and hard-to-abate areas of the power sector, because these instruments are not bound by the specific use of proceeds criteria that applies to other sustainable bonds.

24 All y-o-y change figures are comparing sector/market value in 2021 (up until 31/12/21) to 2022 (up until 31/12/22)

Table 4 : Power sector specific real economysustainable bonds – regions

Region	Number of bonds	Value (\$m)	% Share of value
East Asia and Pacific	330	73,878	80%
Europe and Central Asia	447	239,108	42%
Latin America and Caribbean	91	15,929	77%
Middle East North Africa	3	2,111	0%
North America	181	86,070	50%
South Asia	35	14,597	22%
Sub Saharan Africa	4	1,586	2,362%

Source: Environmental Finance Data

A breakdown by market type and region similarly demonstrates stark contrasts in the year-on-year growth of power sector-specific sustainable bonds. Although Europe and Central Asia bonds continue to make up the lion's share of issuance, year-on-year growth in this region is outpaced by most world regions, including those where emerging markets predominate.

For example, East Asia and Pacific issuers saw yearon-year growth in sustainable issuance of 80%, closely followed by Latin America and the Caribbean at 77%. Sub-Saharan African year-on-year growth in issuance is an impressive 2362%, albeit from an extremely low base. The developed North American region also outweighs Europe and Central Asia with growth of 50%. Only South Asia lags behind, with year-on-year growth of just 22%.

Table 5: Power sector specific real economysustainable bonds – emerging market anddeveloped markets

Market	Number of bonds	Value (\$m)	Y-o-y growth (value)
Developed market issuers	664	328,548.42	40%
Emerging market issuers	354	91,916.10	75%

Source: Environmental Finance Data

These tendencies are reflected in the aggregate figures for growth by market type, with sustainable issuance in emerging markets growing year-on-year by 75%. By contrast, developed markets grew at a slower rate of 40% year-on-year. Taken together, these trends demonstrate that increasing numbers of issuers and investors are taking advantage of the significant untapped potential for sustainable debt offered by emerging markets.

Table 6: Sustainable bonds with the "renewableenergy" use of proceeds or KPI – label

Sustainable bond label	Number of bonds	Value (\$m)	Y-o-y growth (value)
Green	3,114	1,401,624	64%
Sustainability	405	202,507	566%
Sustainability-linked	45	24,711	74%
Transition	14	2,115	239%
Total	3,578	1,630,958	81%

Source: Environmental Finance Data

Among sustainable bonds with renewable energy as their use of proceeds or KPI issued since 2007, green remains dominant, accounting for more than 90% of issued bonds. Yet while there has been drastic growth across all labels in this category averaging 81%, year-on-year growth in sustainability bonds is most pronounced, rising to an impressive 566%.

The role of transition bonds is contested, with many seeing sustainability-linked instruments of greatest relevance to high-emitting and hard-to-abate sectors due to their KPI structure. Yet, growth in transition bonds among issuers with renewable energy use of proceeds is similarly high at 239%.

Although this rise proceeds from a low base, it reflects growing interest in these instruments as a means of addressing high carbon emissions in some of the dirtiest industries. It may also result from accusations of greenwashing in relation to sustainability-linked bonds in some quarters, as well as concerns surrounding the ability of issuers to meet KPIs and the financial, reputational, and even legal implications of failing to meet targets.

The marked rise in sustainability-linked bonds with a renewable power KPI is due in part to their popularity among emerging market issuers, who are drawn to the flexibility provided by these instruments, such as their ability to be used for general corporate purposes rather than being confined to strictly green criteria.

When it comes to issuer type, sustainable debt with renewable energy use of proceeds is dominated by corporates, followed by financial institutions, sovereigns, supranational organisations, government agencies, and finally municipalities. Although there has been substantial growth in sustainable issuance across issuer types, supranational organisations and sovereigns have seen the biggest year-on-year increases, rising 213% and 104% respectively.



Figure 7: Renewable energy use of proceeds - issuer type (value)

Power sector – green and sustainability-linked loans

By the close of the first quarter of 2023, the volume of green loans issued with renewable energy use of proceeds exceeded \$64.5bn in value. This figure is exceeded by the volume of sustainability-linked loans with renewable energy use of proceeds, which total more than \$126bn.

As more companies and governments begin to implement net zero strategies, the demand for sustainable loans of both labels is expected to rise. On the supply side, lending banks are keen to demonstrate their sustainable credentials and to extend the proportion of debt in their portfolios lent to borrowers that is labelled sustainable.

Power sector – sustainable bond issuance outlook

As one of the highest emitting industries and most visible polluters, the power sector will continue to attract interest among investors and governments committed to facilitating the green transition.

Meanwhile the high cost of constructing low carbon energy infrastructure means that entities active in the power sector are likely to issue sustainable debt in ever greater amounts to fund the necessary expenditure.

As the regulatory burden surrounding high emitting forms of energy tightens and net zero target dates grow nearer, the need for sustainable forms of debt among players in the sector is only likely to increase.

Agribusiness

griculture accounts for 4% of global GDP, rising to 25% of GDP in some of the least developed countries. The sector is crucial when it comes to tackling extreme poverty and promoting shared prosperity, with growth in agriculture between two to four times more effective in raising incomes amongst the poorest compared to other sectors.³⁴

However, the sector is increasingly vulnerable to shocks ranging from the Covid-19 pandemic to extreme weather to military conflicts. Factors such as Russia's invasion of Ukraine and climate-related crop failure have constrained global access to food commodities, driving up food prices and pushing millions into poverty. For many, income losses and inflationary pressures arising from such factors as the Covid-19 pandemic and supply chain disruption have further reduced access to a healthy diet.

Food insecurity remains a major issue, with around 205 million people across 45 countries having so little access to food that their lives are at risk.³⁵ Although poor nutrition is a contributing factor to illnesses and health crises globally, approximately one third of all food is either lost or wasted.

Sustainability and agribusiness

Agricultural activities and food production are associated with emissions of greenhouse gases including carbon dioxide, nitrous oxide, and methane. Collectively, food systems are responsible for approximately 30% of global emissions, with around one third of methane emissions produced by cows and other livestock due to the fermentation process during digestion.^{36 37}

The decomposition of manure and rice cultivation are other activities that make a significant contribution to methane emissions. Although the carbon intensity of the agricultural sector is expected to decline, absolute greenhouse gas emissions from agriculture are projected to rise by 4% by 2030, with livestock accounting for more than 80% of this increase.³⁸

38 Agricultural Outlook 2021-2030, OECD-FAO, July 2021

Change of land use for agricultural purposes, such as clearing land for crop production, are also significant contributors to carbon dioxide emissions and biodiversity loss. Indeed, land use-related carbon emissions account for around 14% of global carbon dioxide emissions annually, while some 24,000 of 28,000 species at risk of extinction are threatened by agricultural activities.³⁹

Wider access to inputs and productivity-enhancing investments in technology, infrastructure and training mean that global agricultural output is projected to increase by 1.4% per year to 2030, with additional production concentrated in emerging economies and low-income countries.⁴⁰ As a result, global food availability per person is projected to increase by 4% over the decade, reaching 3,025 calories by 2030.⁴¹

Nevertheless, this figure obscures some important regional differences, with middle-income countries expected to increase their food intake most significantly. Low-income countries, meanwhile, will remain broadly unchanged. In Sub-Saharan Africa – among the regions hardest hit by undernourishment - daily per capita calorie availability is projected to increase by only 2.5% by 2030 to reach 2,500 calories.⁴²

Although the share of imported calories will likely stabilise at around 20% by 2030, in the Middle East and North Africa this is projected to reach some 64%.⁴³ Trade restrictions such as import and export controls on agriculture could have serious implications for global food security as a result.

Agriculture – sustainable bonds

Sustainable use of proceeds in agriculture and food are varied and there is no single use of proceeds category that serves as a relative proxy for the sector. Still, when it comes to ICMA's Green Bond Principles and Social Bond Principles, several use of proceeds categories are particularly relevant.

These include green categories like terrestrial and aquatic biodiversity conservation, sustainable management of living natural resources, climate change adaptation and pollution prevention and control. Among social use of

^{33, 34, 35, 36} Agriculture Overview, World Bank, Accessed April 2023

³⁷ Climate Risks in the Agricultural Sector, UN Environmental Programme, Accessed April 2023

³⁹ Climate Risks in the Agricultural Sector, UN Environmental Programme, March 2023

^{40, 41, 42, 43} Agricultural Outlook 2021-2030, OECD-FAO, July 2021



Figure 8: Agribusiness sector specific (agriculture/fisheries & food/beverage) sustainable bonds - label

proceeds in agriculture and food, access to essential services, socioeconomic advancement, food security and even affordable housing are common.

The size of the sustainable bond market in agriculture has swelled from just 56 bonds at the time of our previous report in 2022 to 122 by the end of Q1 2023. There has been a large upswing in the number of sustainability-linked bonds issued by entities in the agricultural and food and beverage sectors, rising 191% year-on-year.

These now make up more than \$23bn by value, the largest of any label. In terms of the number of bonds issued, 44 bonds issued by the sector were sustainability-linked, with 30 of these coming to market since the time of our previous report in 2022.

The structure of sustainability-linked bonds is particularly suited to the agriculture industry as the applied use of proceeds criteria is less strict and can be used for general corporate purposes. In addition, the reporting requirements are typically less stringent.

Green labelled bonds are the next largest category among sustainable bonds in the agriculture sector by volume and have seen healthy year-on-year growth of just under 33%. Although there have been a greater number of green bonds issued (46) than any other label, these have typically been smaller in size than sustainability-linked instruments; the value of the green agricultural bond market is around \$10bn less than that of the equivalent sustainability-linked market.

Social bonds in the agricultural sector have also seen high growth of just under 159%, albeit from a low base. Despite the potential for bonds in the agriculture sector that combine green and social use of proceeds, year-onyear growth in sustainability instruments is relatively low at just 18%.

An interesting example of how social use of proceeds criteria can be applied to bonds in the agricultural sector was a bond issued in 2022 by Filipino rice producer SL Agritech. In its social bond framework, the company seeks to promote socioeconomic advancement and empowerment through research and development and the provision of opportunities to small-scale farmers and women.

Transition bonds in this space are exceedingly rare. To date there have been just two, including a recent issuance in January 2023 by Brazilian agribusiness platform



AgroGalaxy in the form of agricultural receivables certificates – a type of asset backed security particular to Brazil. AgroGaxy's transition instrument was deemed by a second party opinion to meet pollution prevention, sustainable management of living natural resources, and biodiversity conservation use of proceeds criteria by enabling the transition away from chemical inputs and by contributing towards the recovery of degraded areas for cultivation.

Agriculture/food and drink – largest bonds and issuers

Among issuers specific to the agriculture and fisheries sector, only a handful have issued multiple bonds to date. The largest recorded bond was a \$1bn AUD sustainability-linked bond from Australian fertiliser producer and retailer Wesfarmers, which was issued in 2021. Wesfarmers is the second largest issuer active in the agriculture sector overall after India's Adani, which also carries extensive operations in the energy sector. The interest rate in the transaction was tied to the development of renewable energy among the company's retail divisions and the reduction of carbon emissions intensity resulting from the production of fertiliser.

Meanwhile, a recent representative example of a large green bond from an issuer in agriculture came from Norwegian fish farm SalMar in 2021, with use of proceeds directed towards the expansion of renewable energy and electrification in the company's operations alongside clean transportation, wastewater management, and products adapted to the circular economy.

When it comes to issuers in the food and drink space

more broadly, some of the largest issuers include Brazilian beef producer JBS and French groceries retailer Carrefour, both of whose sustainable issuance is limited to sustainability-linked bonds. In both cases, the issuers determined KPIs linked to Scope 1 and 2 carbon emissions, with Carrefour adding reduction in packaging and food waste to its targets.

Although Carrefour is also responsible for the second largest sustainable bond recorded in the food and drink sector, the largest single sustainable bond in the sector came from food, snack and beverage company Mondelez International in the form of a €2bn green bond. Use of proceeds included sustainable management of living natural resources in relation to cocoa farming on behalf of the company; pollution prevention and control in connection with the rollout of recyclable packaging in products; and clean transportation when it came to upgrading vehicle fleets, among others.

Agriculture – Green and sustainabilitylinked loans

Use of proceeds vary considerably among green loans in the agricultural sector and there is no one use of proceeds category that can be considered typical within the agricultural sector. But among sustainability-linked loans, some 29 have KPIs relating to food and farming, representing almost \$18bn by value. Among loans borrowed by agriculture-specific entities, more than 90% of the value of these is sustainability-linked, with just 9% labelled green. Less than 1% of the value of loans borrowed by agriculture-specific borrowers is labelled social.



Transportation

he sector encompasses passenger and freight modes of transportation across road, air, rail, and sea and is key to delivering economic growth and prosperity. The transportation sector creates jobs through increased connectivity and access to markets while expanding access to essential services such as healthcare and education among local populations. Equally important is supporting infrastructure such as quality roads, railway networks, ports, and airports.

Despite its role in facilitating other economic transactions, transportation is an important industry in its own right; the global market for transportation services was estimated at \$6.7trn in 2022 and is projected to increase to \$8.9trn by 2030.²⁵ Markets experiencing rapid growth in transportation include China, Canada, Japan, and Germany.²⁶

In the European Union alone, logistics such as transport and storage account for between 10-15% of the cost of a finished product, with 13% of a typical European household's budget expended on transportation goods and services.

Sustainability and transport

More than 20% of global greenhouse gas emissions can be traced back to domestic and international transport; this figure could grow to 60% of global emissions if left unchecked.²⁷ Some 95% of the world's transport energy still comes from fossil fuels, while for 45% of countries transport is the largest source of energy-related emissions. For the remaining countries, it is the second largest source.²⁸

Transport's share of total national greenhouse gas emissions ranges from 30% in high income economies to less than 3% in some of the least developed countries. Between 2010-2019 carbon emissions from transport rose in all countries, except for Europe where they fell by 2%.²⁹

Transport was among the sectors most affected by the Covid-19 pandemic. In 2021 emissions from the sector rebounded, growing by 8% to reach 7.7 Gt as countries lifted restrictions and the flow of goods and passengers began to resume once more. However, if net zero targets are to be met, transport sector emissions must fall by about 20% to less than 6 Gt by 2030, including through the introduction of electric vehicles.³⁰

Despite a depressed car market, sales of electric vehicles increased in 2020 and nearly doubled year-on-year to 6.6 million in 2021, bringing the total number of electric cars on roads to over 16.5 million. By way of comparison, in 2012 worldwide sales of electric vehicles were 120,000; by 2021, that many were sold in a week.³¹

According to the World Bank, around one billion people globally live more than 2km away from an all-weather road, with lack of access highly correlated with poverty. Meanwhile one in six women globally are prevented from looking for jobs for fear of harassment in transit, while 93% of the 1.35 million annual fatalities that result from road collisions occur in developing countries.³²

Investing in sustainable transportation, especially in lowincome or vulnerable communities, is an effective way of boosting human development and social inclusion, for example by creating jobs or expanding school enrolment, especially among girls.

Transport – sustainable bonds

As a high emitting sector, transport requires large amounts of investment to update relevant infrastructure and transition to a lower carbon model. This includes the development of public transportation infrastructure that can both discourage private car use and provide access to transportation among underserved communities, with sustainable bonds key to providing the necessary funds.

The main indicators of a bond's relevance to the transport sector are whether the bond is from an issuer

²⁵ Global Transportation Services Industry, Global Industry Analysts, March 2023

²⁶ Transport Sector Economic Analysis, European Commission, Accessed April 2023

²⁷ Transport Overview, World Bank, Accessed April 2023

²⁸ United Nations Sustainable Transport Conference 2021, Fact Sheet

²⁹ United Nations Sustainable Transport Conference 2021 Fact Sheet, United Nations, October 2021

³⁰ Transport: Improving the sustainability of passenger and freight transport, International Energy Association, Accessed April 2023

³¹ Transport: Improving the sustainability of passenger and freight transport, International Energy Association, Accessed April 2023

International Energy Association, Accessed April 2023

³² Transport Overview, World Bank, Accessed April 2023



Figure 9: Clean transportation use of proceeds - issuer type (value)

in the sector, or whether the use of proceeds or KPI relate to the "clean transportation" category that forms part of ICMA's Green Bond Principles. The number of issuers including clean transportation use of proceeds is greater than the number of transport-specific issuers. Yet, it remains an effective proxy for some degree of involvement in the transport sector, although "pollution prevention" is also common among issuers with some involvement in transportation.

Table 7: Sustainable bonds with "CleanTransportation" use of proceeds or KPI – label

Sustainable bond label	Number of bonds	Value (\$m)	Y-o-y growth (value)
Green	1,768	984,750	78%
Sustainability	335	173,137	826%
Sustainability-linked	14	22,698	561%
Transition	8	2,195	6%
Total	2,125	1,182,780	105%

Source: Environmental Finance Data

Bonds labelled green continue to form the bulk of sustainable issuance with "clean transportation" use of proceeds. While all labels in this category including green have experienced sizeable growth, the dramatic increase in value of sustainability bonds stands out, rising 826% year-on-year compared to 78% for green bonds. Meanwhile sustainability-linked instruments with "clean transportation" use of proceeds have also seen dramatic year-on-year growth of 561%, albeit from a low base.

Sustainable bonds with "Clean Transportation" use of proceeds or KPI – issuer type

Sovereigns are the biggest issuers of sustainable bonds with clean transportation use of proceeds by value. This reflects close involvement among these issuers in the development of greener transportation projects for their citizens, as well as the large volumes sovereigns can leverage to make this possible.

Corporates issue the largest number of bonds in absolute terms and are the second largest issuers of sustainable bonds with clean transportation use of proceeds by value, with common use of proceeds including investment in electrification and the upgrade of vehicle fleets to cleaner alternatives. By value, the third largest issuer type in this category are financial institutions, which often seek to promote sustainable development through their investments.

A look at the relative rates of year-on-year growth of sustainable bonds with clean transportation use of proceeds reveals that although supranational issuers currently trail these issuer types in terms of overall value, they are quickly playing catch-up. Indeed, supranational issuance in this category has grown some 319% year-on-year – the highest rate of growth of all issuer types.

Among transport-specific issuers in the real economy, green continues to dominate. Yet social issuance in this category has seen robust year-on-year growth, increasing by 1202%. This dramatic rise reflects the relevance of social use of proceeds categories such as access to essential services and basic infrastructure to the transport sector and its related ability to enhance social inclusion. Sustainability-linked bonds in this category, which often feature social KPIs, have also seen a sizeable increase, albeit from a low base.

Table 8: Transport sector specific real economysustainable bonds – label

Sustainable bond label	Number of bonds	Value (\$m)	Y-o-y growth (value)
Green	303	115,839	39%
Social	49	13,262	1202%
Sustainability	38	5,902	58%
Sustainability-linked	22	6,029	107%
Transition	5	1,114	0%

Source: Environmental Finance Data

Previously, government agencies in the real economy issued fewer transport sector bonds than corporate issuers but accounted for a comparable value of issuance. The proportion of sustainable debt in the transport sector issued by government agencies has declined and is growing far more slowly than equivalent growth in corporate issuance, which has increased by 85% yearon-year.

Table 9: Transport sector specific real economy sustainable bonds – issuer type

Issuer type	Number of bonds	Value (\$m)	Y-o-y growth (value)
Agency	88	54,228	21%
Corporate	328	86,718	85%

Source: Environmental Finance Data

Among transport types, rail continues to dominate sustainable issuance. This is unsurprising as rail is prevalent in developed market economies where sustainable debt is most prominent. In addition, measures to improve the sustainability of rail such as electrification and energy efficiency improvements are readily available in advanced economies subject to investment.

Table 10: Transport sector specific real economysustainable bonds – transport type

Transport type	Number of bonds	Value (\$m)	Y-o-y growth (value)
Rail	217	84,176	27%
Air	26	13,735	15%
Road	79	17,321	232%
Maritime	44	9,460	125%
Other	13	5,527	101%

Source: Environmental Finance Data

In terms of year-on-year changes, growth of sustainable debt in rail is slow compared with other transport types at around 27%. By contrast, sustainable use of proceeds relating to roads has increased by 232% year-on-year.

This is particularly significant for emerging market economies where road transport remains dominant and where opportunities for real economy issuance in the rail sector are limited. Meanwhile, the growth of issuance in maritime represents a major opportunity to improve the sustainability profile of shipping, which remains a highemitting industry.

Transport sector specific real economy sustainable bonds – regions

By region, the Europe and Central Asia and East Asia and Pacific regions are by far the largest issuers of transport sector sustainable bonds. Of these, East Asia and Pacific is growing fastest, with year-on-year growth of 135% compared to 33% in Europe and Central Asia. Nevertheless, Europe and Central Asia remains the largest overall market for sustainable bonds



Figure 10: Transport sector sustainable bonds – geography (value)

in the transport sector. Higher value bonds tend to be concentrated in Europe and Central Asia, with the total sum of issuance distributed among just 160 bonds compared to 224 bonds in East Asia and Pacific.

There are some discrepancies between the largest transport sector issues in emerging markets and their respective transport subcategories when it comes to Source: Environmental Finance Data

volume. For example, although air transportation makes up a relatively small share of the overall market for sustainable debt in the transport sector, some of the largest transport sector bonds in emerging markets historically and in 2022 have been from the aviation sector, such as Mexico's Grupo Aeroportuario del Pacífico and Aeroenlaces Nacionales.

Table 11: EM transport sector bond issuance in 2022

Issuer	Amount	Currency	Amount (\$m)	Issuer type	Country	Label	Settlement date	Sector
Aeroenlaces Nacionales	1,000	MXN	52	Corporate	Mexico	Sustainability- Linked bond	18/11/2022	Public transportation
České dráhy	500	EUR	487	Corporate	Czech Republic	Green bond	12/10/2022	Public transportation
Grupo Aeroportuario del Pacífico	2,758	MXN	136	Corporate	Mexico	Sustainability- Linked bond	26/09/2022	Public transportation
Indian Railway Finance Corporation	500	USD	500	Corporate	India	Green bond	21/01/2022	Financial, Public transportation
Indian Railway Finance Corporation	500	USD	500	Corporate	India	Green bond	20/01/2022	Financial, Public transportation
Office National des Chemins de Fer du Maroc	1,000	MAD	93	Agency	Morocco	Green bond	28/07/2022	Public transportation



Transport sector – green and sustainability-linked loans

At the end of Q1 2023, recorded green loans with clean transportation use of proceeds exceeded \$25bn in value and recorded sustainability-linked loans with clean transportation use of proceeds made up more than \$52bn in value. Among the combined loans borrowed by the public transportation and maritime sectors more generally, just under 17% are green, with 83% sustainability-linked. Social loans in this space are almost non-existent, accounting for less than 0.1% of sustainable loans.



Country focus: Poland

Country:	Poland
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Population: 38 million (World Bank 2021)

GDP: \$679.4bn (World Bank 2021)

Fixed income debt market total issuance 2007-2022: \$116.08bn (Dealogic)

Real economy bond issuance 2007-2022: \$9.5bn (Dealogic)

Sustainable bond issuance 2007-Q1 2023: \$8.4bn (Environmental Finance Data)

Real economy sustainable bond issuance 2007-Q1 2023: \$2.9bn (Environmental Finance Data)

Figure 11: Poland – bond issuance 2007-Q1 2023



Source: Dealogic, Environmental Finance Data

Macro-economic overview

Over the past three decades the Polish economy has been among the fastest growing in Europe, with the country achieving the extraordinary feat of transitioning from upper middle income to high income status over the course of the last fifteen years.

By 2021, per capita income in terms of purchasing power parity represented 77% of the EU average – a significant convergence compared to the situation in 2000, when Polish per capita income on the same terms accounted for less than half that of the EU average. This impressive long-term growth is grounded in productivity and efficiency gains, as well as EU transfers following accession to the bloc in 2004.

The Polish economy shrank for the first time since 1991 during the Covid-19 pandemic but was quick to recover. Foreign Direct Investment (FDI) inflows to Poland had been rising steadily over a period of years. However, beginning with the pandemic, these were given an additional boost, reaching a record high of \$24.8bn as the country benefitted from the widely perceived need to shorten supply chains amid lockdowns and heightened geopolitical tensions.

Inflation peaked in early 2023 and is expected to settle at around 3.5% in 2024. Nevertheless, pressures stemming from Russia's invasion of Ukraine threaten to dampen economic growth for the foreseeable future, while unprecedented government spending to mitigate the impact of the Covid-19 pandemic and inflation has narrowed the available space for future interventions.

The Polish economy's resilience owes much to its high degree of diversification, with the country enjoying some of the lowest rates of unemployment in the EU. Economic inequality is lower than in most advanced economies, even as the process of income convergence with the EU is ongoing and economic differences between regions remains stark.

Services account for the lion's share of the economy at around 65% of value, followed by manufacturing and agriculture which make up 30% and 3% respectively. Poland's principal exports include high value products such as motor vehicles and associated manufactures.

Poland could face future obstacles to growth due to a tightening labour market made worse by the country's ageing population – although large inflows of displaced people following Russia's invasion of Ukraine could help to alleviate this trend temporarily. Further, business investment remains low, while the Polish economy has not always exploited the full potential offered to it through the adoption of digital skills and technology.

Where such reforms have been implemented, the country has experienced above-average productivity gains relative to OECD peers, although shortages of skilled labour and the need for retraining must first be addressed to develop this potential fully. When it comes to fiscal policy, there is a need to broaden the revenue base through raising the age of retirement and by determining efficiencies in public spending.

Although energy intensity proportional to GDP has decreased by around 40% since 2000, Poland is highly dependent on coal for a large share of its energy mix and remains among the most carbon-intensive economies in Europe. As a result, more than three quarters of the population are exposed to harmful levels of pollution and progress towards reducing greenhouse gas emissions appears to have stalled in recent years.

Despite Poland's rapid economic recovery, progress on lifting those living below the poverty line has stagnated, while 1.6 million Polish households are estimated to be energy poor.

Regulations and government policy regarding sustainable debt or sustainability targets

Poland is a signatory to the Paris agreement, which requires that global carbon emissions reach net zero by 2050 but is yet to formally commit to a goal for climate neutrality. As a result, it is Poland's status as a member of the European Union that is the main driver of its climate policy, which remains tightly bound up with that of the bloc.

Poland will benefit from the EU's Innovation Fund, which earmarks €10bn between 2020-2030 for commercial projects that assist the transition to a low-carbon economy. In addition, the Polish agricultural sector is eligible for funds under the European Agricultural Fund for Rural Development (EAFRD). In 2022, the Polish government announced that it had initiated work on a roadmap for the development of sustainable finance in Poland, with the aim of

of sustainable finance in Poland, with the aim of leveraging opportunities created for the Polish capital market through the transformation of the European economy towards climate neutrality.

At the same time, Warsaw set forth its plans to establish the Polish Sustainable Finance Platform. Funded by

European Union – sustainable development and sustainable finance regulations

All members of the European Union are signatories of the Paris agreement, which requires that global carbon emissions reach net zero by 2050. Among the bloc's flagship policies in this area is the EU Green Deal, a roadmap for transitioning the EU to climate neutrality without diminishing its economy. Rather, the Green Deal aims to improve the EU's position vis-à-vis peer competitors such as China, whose solar and electric vehicle industries threaten to undermine EU supremacy in renewables and green technology, whilst also enhancing the quality of life for the bloc's population of around half a billion people. The goals of the Green Deal were enshrined in the European Climate Law, which entered into force in 2021 and sets a legal objective for the EU to reach net zero carbon emissions by 2050.

The EU intends to reach this goal by reducing carbon emissions by 50-55% by 2030; eliminating pollution; implementing the roll-out of sustainable mobility; energy efficient buildings; sustainable industry; clean energy; and sustainable agriculture. Other major themes that form part of the Green Deal are the reversal of biodiversity loss and the efficient use of resources via transition to a circular economy model.

Accordingly, the bloc has published its Action Plan for the Circular Economy with measures covering the full life cycle of products from production and consumption to waste management. Most of the financing for these initiatives will come from the EU's budget, although the Green Deal also incorporates policies to encourage investment from the private sector, including loan guarantees from the bloc's lending arm, the European Investment Bank.

While the transition to a climate neutral economy will impact all industries, those sectors that are particularly affected include energy, transportation, building, and food. This is due to the push for sources of clean energy alternatives alongside the development of electric vehicles and sustainable farming practices.

Recognising the differential impact the transition to a carbon neutral economy will inevitably have on various sectors and communities, the EU's Just Transition Mechanism seeks to ensure that no one is left behind by these processes. It does this by extending targeted support to affected regions, including those dependent on fossil fuels. This is especially relevant for countries such as Poland, whose economy remains carbon intensive due to the dominance of coal in its energy mix.

Another EU mechanism relevant to Europe's transition is the Cohesion Fund, which aims to support EU member states with a gross national income per capita of below 90% of the EU-27 average to strengthen the economic, social and territorial cohesion of the EU. Alongside fostering competitiveness in agriculture and the sustainable management of natural resources, the European Agricultural Fund for Rural Development (EAFRD) aims to achieve the balanced territorial development of rural economies and communities.

With the onset of the Covid-19 pandemic, the EU introduced the Recovery and Resilience Facility (RRF), which made approximately €724m available in grants and loans to mitigate the economic and social impact of the disruption caused. As well as helping to spur job creation and growth, the facility is designed to make European economies and societies more sustainable and resilient, preparing the way for the challenges and opportunities associated with the green and digital transitions.

Following Russia's invasion of Ukraine, the facility was supplemented by REPowerEU to expedite the transition to clean energy, thereby drastically reducing the bloc's dependence on Russian fossil fuels.

Issuer	Currency	Dollar value (m)	Issuer type	Bond label	Settlement date	Maturity date	Sector
Bank Gospodarstwa Krajowego	EUR	802	Corporate	Social bond	22/02/2023	22/02/2033	Financial
Cyfrowy Polsat	PLN	610	Corporate	Sustainability- Linked bond	11/01/2023	11/01/2030	Telecommunications
PKO Bank	EUR	528	Financial Institution	Green bond	04/07/2022	25/06/2026	Financial
R.Power	PLN	57	Corporate	Green bond	27/04/2022	(Private placement)	Energy – renewable: solar
Famur	PLN	100	Corporate	Green Bond	03/11/2021	03/11/2026	Mining/metals
mBank	EUR	591	Financial Institution	Green bond	20/09/2021	21/09/2027	Financial
PKN Orlen	EUR	607	Corporate	Green bond	21/05/2021	27/05/2028	Oil and Gas
PKN Orlen	PLN	256	Corporate	Sustainability- Linked bond	25/03/2021	25/03/2031	Oil and Gas
PKN Orlen	PLN	273	Corporate	Sustainability- Linked bond	22/12/2020	22/12/2025	Oil and Gas
Cyfrowy Polsat	PLN	255	Corporate	Green bond	14/02/2020	12/02/2027	Telecommunications
PKO Bank	PLN	64	Financial Institution	Green bond	27/11/2019	02/12/2024	Financial
PKO Bank	PLN	66	Financial Institution	Green bond	10/06/2019	30/09/2024	Financial
Republic of Poland	EUR	1707	Sovereign	Green bond	07/03/2019	07/03/2029	Government – national
Republic of Poland	EUR	569	Sovereign	Green bond	07/03/2019	08/03/2049	Government – national
Republic of Poland	EUR	1243	Sovereign	Green bond	07/02/2018	07/08/2026	Government – national
Republic of Poland	EUR	792	Sovereign	Green bond	19/12/2016	19/12/2021	Government – national

Table 12: Poland sustainable bonds

Source: Environmental Finance Data

the EU, the initiative is designed to facilitate dialogue between participants of the Polish capital market and non-governmental organizations – as well as public officials and Polish and foreign development institutions – as part of efforts to implement the Polish Capital Market Development Strategy.

Sustainable bond issuance

In 2016 Poland became the first sovereign ever to issue a green bond via a 5-year \notin 750 million green issuance; strong demand of \notin 1.5bn enabled the country to increase the size of the issuance from an initial 500

million. According to Poland's sovereign green bond framework, which is aligned with ICMA's Green Bond Principles, the use of proceeds from the issuance included renewable energy and clean transportation, alongside more singular projects such as expenditure on national parks and remediation of contaminated land.

Since reaching this milestone, the sustainable bond market in Poland has grown to encompass 15 bonds worth \$8.4bn. This includes several more rounds of green sovereign issuance alongside corporate green and sustainability-linked bonds. So far, the overwhelming majority of sustainable issuance by value has been labelled green at 85%, followed by sustainability-
linked instruments at around 15%; the majority of Polish issuance is denominated in euros, although approximately 20% of issuance is denominated in Polish zloty.

Although sovereign issuance continues to dominate at more than half of the total value of the Polish sustainable bond market, there have been several issuances from the financial sector, notably PKO Bank and mBank. Among real economy sustainable bond issuers are telecommunications firm Cyfrowy Polsat, oil and gas supplier PKN Orlen and mining company Famur

PKN Orlen are notable for having issued both green and sustainability-linked bonds, although in 2022 the company became the first issuer of sustainability-linked bonds to pay a coupon step-up after its sustainability ratings was substantially downgraded by MSCI, leading to the interest payments on its two bonds rising by one-twentieth and one-tenth of a percentage point respectively.

A sustainability or social bond is yet to be recorded in Poland, although the government is reportedly mulling issuing social bonds as part of efforts to support displaced people fleeing Russia's invasion of Ukraine. There is some activity in the sustainable loan market among Polish borrowers with around \$2.5bn in sustainability-linked loans since the beginning of 2022. Borrower sectors include power, telecoms, and mining.

Power sector

Poland's energy sector is notable for the dominance of coal, which continues to make up around 70% of the country's energy mix. The country's renewable energy sector has expanded rapidly in recent years; between 2012 and 2021, renewable energy sources (RES) increased by 80% from 16.8 TWh to 30.4 TWh.⁴⁴

Among Polish renewables, in 2021 wind power accounted for 54% of generation, followed by biomass at 15% and solar at 13%, with solar power the fastest growing among these followed by wind.⁴⁵ Poland's photovoltaic sector saw year-on-year growth of 95% in 2021 and is the second largest solar market in terms of new installed capacity in the European Union, ranging from small scale private rooftop systems to large free-standing installations.⁴⁶

This is partly due to actions by the Polish government following the introduction of strong regulatory support and incentives for the solar industry, which is expected to grow by 35% annually in the near to medium term, reaching 12.9 GW by 2024.⁴⁷ By mid-2022, this has already exceeded 10GW, a level that government projections assumed would be reached in the mid-2030s when it adopted its energy policy in 2019.

The pace of expansion of generation in renewables remains insufficient to ensure energy security in the face of planned shutdowns and other disruptions to conventional power generation. Although coal-fired generation has given way to gas-fired power generation in recent years, this trend has reversed due to rising natural gas prices and increases in energy demand. This became even more pronounced following Russia's invasion of Ukraine in early 2022.

Meanwhile, declines in domestically produced coal due to ageing reserves and lack of investment in the sector have driven up coal imports, mainly from Colombia. In 2022, this was compounded by the prohibition of the import of Russian coal. Recently, Poland has diversified its sourcing of gas away from Russia and towards supplies of liquified natural gas including from Qatar and the United States.

Nevertheless, most of Poland's coal-fired power stations were constructed between 1960 and 1980 and will need to be retired in the coming years, pushing further expansion in gas-fired power and renewables. Poland is committed to phasing out lignite by 2044 and hard coal by 2049 in time for the EU to reach its goal of climate neutrality by 2050. Yet, the country has some of the highest employment in jobs directly related to the coal sector at 108,000 – almost half the EU total – making the topic of just transition particularly relevant for Poland.⁴⁸

Leading Companies:

Polska Grupa Energetyczna (PGE): PGE is active in the production, sale and distribution of energy in Poland. The company is vertically integrated to include lignite mines, power plants, distribution system operators, and retail sales companies.

Enea: is engaged in the production and distribution of energy in Poland, with the company's portfolio including both fossil fuel and renewable energy sources that include biomass and hydroelectric power. The company's major shareholder is the Polish state.

^{44, 45, 46} Poland – Country Commerical Guide, International Trade Administration, Accessed April 2023

⁴⁷ Poland – Country Commerical Guide, International Trade Administration, Accessed April 2023

⁴⁸ JRC Technical Report: Indirect jobs in activities related to coal, peat and oil shale: A RHOMOLO-IO analysis on the EU regions, European Commission, January 2022

Pricing date	Maturity date	Issuer	Amount (\$m)	Sector	Issuer type
14/03/2013	19/03/2020	Energa Finance AB	652	Utility & Energy-Electric Power	Corporate
02/06/2014	09/06/2019	PGE Sweden AB	682	Utility & Energy-Electric Power	Public Sector
31/07/2014	01/08/2029	PGE Sweden AB	185	Utility & Energy-Electric Power	Public Sector
28/02/2017	07/03/2027	Energa Finance AB	317	Utility & Energy-Electric Power	Corporate
28/06/2017	05/07/2027	TAURON Polska Energia SA	562	Utility & Energy-Electric Power	Corporate

Table 13: Poland power sector - unlabelled (vanilla) bonds

Source: Environmental Finance Data

Energa: produces and distributes electric power in Northern and Central Poland. The company divides its business into seven segments that include distribution, renewable energy, and the manufacturing of power plants.

Tauron: among the leading electricity utilities in Poland, Tauron carries out coal mining, generation, distribution and supply of electricity and heating through its subsidiaries and joint ventures. The company is based in the southern Polish city of Katowice and is also active in the trading of electricity in the wholesale market.

Unlabelled (vanilla) bond issuance

There have been multiple issuances from the Polish power sector over the past decade that collectively approximate \$2.4 billion in value. These issuances were concentrated in just three entities, namely PGE Sweden, Energa Finance, and TAURON Polska Energia.

Outlook for sustainable bond issuance

The Polish power sector's reliance on fossil fuels creates challenges and opportunities for sustainable bond issuance.

Some sustainable investors exclude fossil fuels from their portfolios; however, from an impact and additionality perspective helping to fund the transition of the Polish power sector could appeal to some investors.

Green bonds are a possibility for power sector issuers; however, transition or sustainability-linked bonds may be a more realistic option. PKN Orlen's sustainabilitylinked bonds, issued in 2021 and 2022 and worth \$529m, are a good example of power sector adjacent issuance. PKN Orlen recently became the first SLB issuer to miss one of the KPIs linked to the SLB sustainability performance target (SPT) and experienced a step up in their bond coupon. R.Power's \$57m green bond in 2022 sets a strong precedent and proves investor appetite for power sector green bonds in Poland and similar profiled renewable energy companies in solar, wind or biomass could feasibly issue a green bond to support their growth. There are encouraging government regulations and targets that could provide a strong pipeline of renewable energy projects for prospective real economy sustainable bond issuers.

Although a bond formally labelled transition is yet to be recorded in Poland, there is considerable potential for these instruments in the country due to the continued dominance of hard-to-abate energy sources including coal.

Agribusiness sector

The Polish agribusiness sector is one of the largest in Central and Eastern Europe and includes some 1.4 million farms, which together make up 2.6% of the country's GDP.⁴⁹Yet, the average size of a Polish farm is just 10 hectares.⁵⁰ Despite the industry's relatively low productivity and fragmentation, Polish agriculture has made strides towards achieving larger-scale commercial farming and enhancing productivity, whilst also shifting away from labour-intensive and subsistence farming.

Among EU countries, Poland is the largest producer of poultry and apples, and the second largest of potatoes. In addition, the country is also third in the EU when it comes to sugar beets, rapeseed and pork. Other significant products for the Polish agriculture industry

⁴⁹ Poland Agricultural Machinery Market, International Trade Administration, Accessed April 2023

⁵⁰ International Trade Administration, Poland Agricultural Machinery Market, Accessed April 2023

⁵¹ Poland: Food Processing Sector Report, Foreign Agricultural Service, US Department of Agriculture, Accessed April 2023

Pricing date	Maturity date	Issuer	Amount (\$m)	Sector	Issuer type
24/11/2009	01/12/2016	CEDC Finance Corp International Inc	568	Food & Beverage-Alcoholic Beverages	Corporate
24/11/2009	01/12/2016	CEDC Finance Corp International Inc	380	Food & Beverage-Alcoholic Beverages	Corporate
06/12/2010	01/12/2016	CEDC Finance Corp International Inc	67	Food & Beverage-Alcoholic Beverages	Corporate

Table 14: Poland agribusiness sector – unlabelled (vanilla) bond issuance

Source: Environmental Finance Data

include wheat, rye, triticale, oats, cruciferous vegetables, carrots, onions, cherries and the dairy industry. When it comes to grains, wheat is the largest crop, followed by a growing quantity of corn. The allied food processing industry accounts for some 5% of GDP, which is driven by strong internal and external demand.⁵¹

Poland is also a major supplier of agricultural machinery, with demand for agricultural precision technologies expected to grow in the country amid a push towards technologically advanced farming. Poland's export of agricultural machinery and equipment – including crops cultivating equipment, tractors, live-stock equipment and poultry-keeping machinery – reached \$1.9bn in 2018, although imports totalled \$2.8bn.⁵² Polish farmers have also made extensive use of funds made available to the country through EU rural development funds to modernise and upgrade their operations.

Leading Companies:

Grupa Azoty: is a conglomerate of some 50 companies in Poland and other part of the world. It is a powerhouse in the Polish domestic fertiliser market and a key player in the European fertiliser and chemical industry. The company is the second-largest producer of nitrogenous and compound fertilisers in the European Union.

Lasy Państwowe: is a state-owned enterprise that manages Poland's state forests. The company undertakes natural conservation of areas managed by it, tree felling in private forests, and property management.

Żywiec Brewery: is a brewing company primarily active in the production and distribution of beer. The company's offering consists of brands such as Zywiec, Heineken, Warka, Tatra, Specjal, Strong, Lezajsk, Namyslow, and Desperados. The firm is part of the Heineken group and operates five breweries in Zywiec, Elblag, Warka, Lezajsk, and Namyslow.

Dino Polska: is a Polish nationwide supermarket chain

specialising in the mid-sized supermarket segment of the market. The company ranks among the fastest growing commercial networks in both sales and the number of store locations in the country.

Ursus: manufactures, sells and distributes agricultural machinery to domestic and international customers. Among the company's products are tractors, spreaders, trailers, cultivators, and other allied machinery.

Unlabelled (vanilla) bond issuance

Over the past decade and a half, issuance of vanilla bonds in Polish agriculture and allied industries in food and beverage has been modest at best, accounting for just over \$1bn by value (see Table 14). Only one issuer, CEDC Finance Corporation, is recorded as having successfully accessed the capital markets during this period. As such, there is limited experience among agricultural enterprises in the real economy to draw on when considering future issuance of labelled bonds.

Outlook for real economy sustainable bond issuance

The fragmented nature of the farming industry and lack of precedence for bond issuance reduces the prospect of a real economy sustainable bond from the Polish agribusiness sector.

It is debateable whether sustainable bonds would be the most appropriate instrument to fund these projects; however, there exist several areas where sustainable issuance could play a role in decarbonising and improving the sustainability of the agriculture and food sectors in Poland and real economy companies with eligible projects.

For example, fertilisers can be made more efficient and less intensive in terms of greenhouse gas emissions; forestry can engage in sustainable management of living natural resources; and food and drinks manufacturers and distributors can adapt business models to incorporate more environmentally friendly practices, such as reducing packaging and food waste and improving the sustainability of transport and distribution.

⁵² Poland Agricultural Machinery Market, International Trade Administration, Accessed April 2023

Transport sector

The Polish government and its associated agencies continue to devote considerable resources to the development of transportation in the country, with the General Directorate of National Roads and Motorways (GDDKiA), the Polish Railway PKP S.A., the Polish Railway Networks (PKP-PLK), the Ministry of Economic Development and Technology, and the Ministry of Infrastructure all responsible for projects in nation-wide or regional transport.

Poland has a large and growing road network spanning 1,300 miles of highways and 3,807 miles of express roads, with Intelligent Transport Systems (ITS) that integrate technological solutions into the transportation network forming an important part of Poland's national highway and road infrastructure.⁵³

Poland's railway network currently has 12,000 miles of railway tracks at its disposal.⁵⁴ Over the period 2014-2020, many railway projects were funded by the EU via Poland's Infrastructure and Environment Program, under which 9,000km of railway roads will be created or improved, and 500 trains will be upgraded.⁵⁵ Over the period 2021-2030, the Polish railway network will receive \$75bn for development, including \$18.7bn under the country's National Railway Programme to implement 230 projects which will improve over 5,592 miles of railroad tracks.⁵⁶

Other areas in transport are also the target of significant investment. Among Poland's flagship projects in this area is the Solidarity Transport Hub, which will construct a major new airport and transport hub covering 3000 hectares 37km west of Warsaw that will integrate road, rail and air transport and shorten journey times between Poland's major cities.

At the same time, Warsaw has two metro lines, while the European Investment Bank has partnered with PPP Solutions Polska to develop a new tramline in Krakow worth PLN180 million (\$43 million) which represents the first public-private partnership in Poland's transport sector. Poland has also developed substantial port capacity in coastal locations such as Gdansk, Gdynia, and Szczecin, as well as locations along the Vistula river. Poland's automotive sector has benefited from the presence of large multinational companies, with Fiat, Opel, Toyota, Volkswagen, Volvo, and Scania all choosing to locate significant operations in the country. When it comes to electric vehicles (EVs), development is currently driven by state companies in the power sector and the state-owned company ElectroMobility Poland.

53, 54, 55, 56 Poland – Country Commercial Guide, International Trade Administration, Accessed April 2023

Leading Companies

PKP: is active in the provision of domestic and international transport of goods by rail and logistic services in the field of railway cargo transport services.

PLK (Polskie Linie Kolejowe S.A.): is the Polish infrastructure manager responsible for the maintenance of rail tracks, scheduling of train timetables and the management of railway properties.

LOT Polish Airlines: is the national carrier of Poland and is majority-owned by the Polish Government. The airline operates an extensive network within Europe and to North America and the Middle East, as well as charter and cargo services from its Warsaw hub.

Port of Gdansk: is a universal port and the largest in Poland, with facilities to accommodate the largest vessels with a draft of up to 15m. It is also the only port in the Baltic region that supports direct container connections with China and serves as a marine gateway for the markets of Central and Eastern Europe among Asian exporters.

METRANS: is among the market leaders in intermodal transport, linking sea container ship cargo with inland Europe via modes including shuttle trains. The company operates 19 intermodal terminals to connect cargo hubs along the North Sea and Adriatic.

Alstom: is a multinational rail company that is active in the manufacture of high-speed trains, metros, monorails, trams, to turnkey systems, services, infrastructure, signalling and digital mobility and employs over 4,000 people.

Unlabelled (vanilla) bond issuance

Since 2011, there have been three unlabelled bond issuances among companies active in the Polish transport sector, with a combined value of under \$1 bn (see table 15). This includes PKP, which is among Poland's leading companies in the provision of railway services, and InPost, a public logistics limited company providing courier, package delivery and express mail services.

Outlook for sustainable bond issuance

The dominance of the public sector in the transport sector in Poland could limit the prospects for issuance of sustainable bonds in the real economy in Poland. The precedence of existing bonds in the sector across a range of companies has prepared the ground for future issuance, including when it comes to more complex labelled instruments.



Table 15: Poland transport sector - unlabelled (vanilla) bond issuance

Pricing date	Maturity date	Issuer	Amount (\$m)	Sector	Issuer type
02/03/2011	09/03/2016	Koleje Mazowieckie Finance AB	132	Transportation-Rail	Public Sector
13/10/2011	20/10/2016	РКР	247	Transportation-Services	Public Sector
24/06/2021	15/07/2027	InPost SA	581	Transportation-Services	Corporate

Source: Environmental Finance Data

Established systems of infrastructure in rail, metro and urban transport in Poland are well placed to offer a steady pipeline of projects suitable for sustainable investment, including the large infrastructure projects already outlined. This trend is reinforced by precedence in public private partnerships in the Polish transport sector, which enable a wider range of stakeholders including the government to shape the overall development of the sector, as well as the availability of significant EU funds for infrastructure development.



Country focus: Romania

Country: Romania

Population: 19 million (World Bank 2021)

GDP: \$284.1bn (World Bank 2021)

Fixed income debt market total issuance 2007-2022: \$83.31 bn (Dealogic)

Real economy bond issuance 2007-2022: \$6.56bn (Dealogic)

Sustainable bond issuance 2007-Q1 2023: \$2.1bn (Environmental Finance Data)

Real economy sustainable bond issuance 2007-Q1 2023: \$1.1 billion (*Environmental Finance Data*)

Figure 12: Romania – bond issuance 2007-Q1 2023





Source: Dealogic, Environmental Finance Data

Macro-economic overview

Over the past two decades Romania's economy has grown rapidly; by 2021 per capita income by purchasing power parity (PPP) was above \$30,000 and represented 68% of the average income by purchasing power parity for the European Union – up sharply from 35% in 2000.⁵⁷ By 2021, the country had also achieved high income status, driven by reallocation in the economy from agriculture and heavy industry towards the service sector as well as private investment.

The changing nature of Romania's economy is reflected in its exports, which have shifted from labour-intensive, low-tech products such as textiles and footwear towards advanced, high-value-add sectors. This includes electronics, for which Romania has emerged as a formidable hub – the country is currently the largest manufacturer of these in Central and Eastern Europe. Unemployment is low and is decreasing steadily.

Amid Russia's invasion of Ukraine, Romania is poised to benefit from the reshoring of supply chains from both countries; this process pushed Foreign Direct Investment (FDI) inflows to Romania to reach \notin 9.39 billion between January and October 2022, the largest ten-month figure since Romania joined the EU.⁵⁸ The IMF expects that the economy will grow by 2.4% in 2023.⁵⁹

In November 2022, the EU recommended that a mechanism in place since 2007 monitoring Romania's judicial system be lifted, unlocking large quantities of funds intended for recovery from the pandemic and giving Romania cheaper access to grants and loans. The government has stated that up until 2027 it expects to tap \in 10bn per year in funding from a pot of \in 90bn made available to it by the EU.

Increasingly, Romania is held up a model of good governance in the region against Poland and Hungary, which continue to be subject to EU sanctions over rule-of-law concerns. Meanwhile, higher salaries in industrialised Western Romania attract growing numbers of Hungarian workers amid the collapse in value of the Hungarian forint.

The Romanian economy rebounded quickly from the economic downturn experienced during the pandemic, growing 5.8% in 2021. Romania has been impacted by soaring inflation in response to Russia's invasion

of Ukraine, high energy prices, and supply chain disruption, with rates hitting 13.8% at the close of 2022.⁶⁰ Meanwhile, supressed demand for exports and disruption to Romanian exporters has worsened the country's balance-of-payments deficit.

Romania's banking system exhibits healthy levels of capital, liquidity and profitability, with the nonperforming loan ratio falling to 2.8% of total loans in 2022 - down from 22% in 2014. However, the banking sector is relatively concentrated and dominated by foreign banks, which account for 68% of total banking assets. There are 34 banks in the market, with the five largest banks holding 62% of market share by total assets as of September 2022.⁶¹

Despite Romania's economic success story, growth is held back by several factors such as regulatory rigidities in the product and labour markets, high entry barriers to certain professions, and the presence of poorly performing state-owned enterprises. The latter can lead to economic misallocation and the persistence of nonviable companies to the detriment of more dynamic businesses.

Private companies complain of opaque regulatory frameworks and the lack of proper consultation of relevant stakeholders by authorities when reaching decisions. The absence of transportation infrastructure hobbles regional development and the integration of these areas into global value chains.

Romania's economic figures also belie persistent issues with poverty and stark regional disparities. The country has the largest share of poor people in the EU (defined as those living on less than \$6.85 per day in purchasing power parity terms) while there exist pronounced differences between urban and rural areas, both in terms of economic activity as well as access to basic services and infrastructure. Romania's ability to absorb funds made available to it by the EU is hampered by a lack of preparation of potential projects.

These problems are exacerbated by the difficulties among some groups in accessing the labour market and challenges in integrating the young, women and the Roma ethnic minority into formal systems of education. Access to healthcare remains poor due to large sections of the population not being covered by health insurance schemes as well as shortages of skilled healthcare workers; mortality resulting from preventable deaths is

57 IFC data

Reuters, January 2023 59 Romania and the IMF, IMF, April 2023

60, 61 IFC data

⁵⁸ Romania quietly catches up with richer neighbours, helped by EU cash,

high as a result. Meanwhile, labour participation among women is hindered by a lack of provision in childcare.

Regulations or government policy regarding sustainable debt or sustainability targets

In addition to climate directives and sources of funding that flow from Romania's EU membership, Romania is a signatory to the Paris Agreement and is party to such United Nations initiatives as the UN Framework Convention on Climate Change (UNFCCC) and the 2030 Agenda for Sustainable Development.

Moreover, in 2020 Romania passed its National Energy and Climate Plan (NECP) – a ten-year document mandated by the EU which addresses all five aspects of the bloc's Energy Union. These include decarbonisation, energy efficiency, energy security and internal energy markets alongside research, innovation, and competitiveness.

As part of this process, the government has stated its intention to boost renewables as a share of the energy mix to 34% - up from the previous goal of 30%. Meanwhile Romania's Integrated National Plan in the field of Energy and Climate Change (PNIESC) mandates that Romania increase its generation capacity in renewables to 5.1 GWh of solar and 5.3 GWh of wind by the end of the decade in order to serve increasing numbers of consumers.

In April 2022, the government incorporated into national legislation recommendations that credit institutions incorporate environmental, social, and governance (ESG) criteria into lending processes. As such, credit institutions are now required by law to put in place adequate strategies to take ESG factors into account in credit-risk analysis. This might include the physical risks of climate change to the financial performance of a borrower and transition risks to borrowers such as market changes.

Those involved in sustainable lending must also include specific procedures outlining monitoring processes for transactions labelled as environmentally sustainable. Importantly, however, precise definitions of ESG factors, risks, and sustainable lending are not given in contrast to the EU level where these are clearly defined.

Sustainable bond issuance

Romania issued its first green bond in 2020 with a \notin 500 million green issuance from NE Property, a wholly owned subsidiary of NEPI Rockcastle. Since this milestone, the sustainable bond market in Romania has grown to include thirteen bonds that together account for \$2.1bn by value. Among these, 86% were labelled green, 12% were labelled sustainability and 3% were labelled sustainability-linked. To date, no social bonds have been recorded in Romania.

Interestingly, 48% of sustainable issuance was denominated in Romanian leu. This is partly due to the dominance of the local financial sector among Romanian issuers, which accounts for 49% of the value of sustainable bonds issued in the country. Among Romanian banks, Raiffeisen Bank Romania – a subsidiary of Austria's Raiffeisen Bank – is responsible for six of Romania's sustainable bonds and 35% of the value of the nation's sustainable bond market. Meanwhile Banca Comerciala Romana has issued three bonds, including a small USD issuance of \$20 million.

Among Romania's real-economy issuers, Autonom Services, a passenger vehicle leasing and repair company, is notable for being the only issuer of a sustainabilitylinked bond in the country. The interest rate applied in the transaction is tied to targets to reduce Scope 1 emissions by 51% by 2030, including through the acquisition of new vehicles for the company's fleet.

There is some activity in the Romania sustainable loan market, with 5 green loans worth \$400m issued since the start of 2022.

Power sector

Romania's energy mix is diverse, drawing on sources including natural gas, nuclear power, and renewable energy, with the largest companies active in electricity generation in Romania state-owned.

Although in 2021 fossil fuels coal and gas were the largest single energy sources, accounting for 36% and 30% of the total energy mix, these were complemented by sizeable contributions from renewables at 12% and nuclear power at 8%. Romania's electricity transmission systems are solely managed and operated by state-owned company Transelectrica.

Romania has set a target to generate 31% of its electricity from renewable sources by 2030, with the country's National Recovery and Resilience Plan drawn up as part

Table 16:	Romania	sustainab	le bonds
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Issuer	Currency	Amount (\$m)	Issuer type	Issuer type	Settlement date	Maturity date	Sector
Banca Comerciala Romana	USD	20	Financial Institution	Green bond	07/03/2023	15/12/2029	Financial
Raiffeisen Bank Romania	RON	78	Financial Institution	Sustainability bond	07/12/2022	07/12/2027	Financial
Raiffeisen Bank Romania	RON	64	Financial Institution	Sustainability bond	18/10/2022	18/10/2027	Financial
Raiffeisen Bank Romania	RON	105	Financial Institution	Sustainability bond	17/08/2022	17/08/2027	Financial
Raiffeisen Bank Romania	RON	113	Financial Institution	Green bond	15/06/2022	15/06/2027	Financial
Banca Comerciala Romana	RON	149	Financial Institution	Green bond	14/06/2022	14/06/2027	Financial
Autonom Services S.A.	EUR	54	Corporate	Sustainability- Linked bond	08/12/2021	23/11/2026	Automotive
Banca Comerciala Romana	RON	117	Financial Institution	Green bond	14/10/2021	14/10/2028	Financial
MW Green Power Export	RON	1	Corporate	Green bond	07/09/2021	07/09/2024	Energy – renewable: solar
Raiffeisen Bank Romania	RON	290	Financial Institution	Green bond	11/06/2021	11/06/2028	Financial
Raiffeisen Bank Romania	RON	99	Financial Institution	Green bond	10/05/2021	14/05/2026	Financial
Globalworth Real Estate Investments	EUR	469	Corporate	Green bond	29/07/2020	29/07/2026	Real Estate - REIT
NE Property BV	EUR	565	Corporate	Green bond	14/07/2020	14/07/2027	Real Estate

Source: Environmental Finance Data

of Next Generation EU requiring the phase out of coalfired power plants by 2032.

Romania's decarbonisation law has resulted in coal power's share of total generation falling faster in Romania than in other Central and Eastern European countries, although more recently the energy crunch in Europe has put pressure on these plans and in some cases delayed planned shutdowns. Those coal-fired plants that Romania continues to maintain will need to be upgraded in the immediate term to comply with European Commission guidelines.

Romania is expected to become a hub for wind and photovoltaic power in the years to come as the country ramps up production. For example, the Romanian Association for Wind Energy has launched a programme to promote the localisation of supply chains in the production of renewables in the country.

In addition, the European Green deal's Modernisation Fund and Just Transition Fund both represent large potential sources of funding for the development of renewable electricity in Romania's power market. The roll-out of disruptive technologies, new legislation, and funding opportunities at both the national and EU levels present considerable upside risks for companies active in the development of renewable and nuclear power. Over time, this could further boost cleaner forms of power.

The government is currently drafting a new offshore wind law which will allow for the development of offshore wind projects that could result in the country becoming the first to develop wind power in the Black Sea. Elsewhere, the government has drafted a law to establish a state support agreement with Romanian nuclear electric company Nuclearelectrica to complete two reactors at the country's Cernavoda nuclear power plant.

Leading Companies:

Enel Energie: has operated in the Romanian power sector since 2005, after taking over the majority stake in three major power distribution and supply companies. Following th acquisition of Muntenia Sud in June 2008, Enel doubled in volume and has reached a share of

approximately 30% in the nation's energy distribution field.

CEZ: first began providing modern energy services in Romania in 2018, with all local activities in this area today operated by the company's subsidiary Elevion Group.

Electrica: provides services to over 3.8 million users and has national coverage, with subsidiaries in three areas for electricity distribution: Transilvania Nord, Transilvania Sud, Muntenia Nord. The company is also active in maintenance services.

E.On: is a supplier of natural gas and electricity in Romania. The company is a member of Germany's E.ON Group.

Nuclearelectrica: is a state-owned power generating company that generates nuclear power and heat using nuclear fission and produces nuclear fuel. The company is the sole producer of electricity based on nuclear technology in Romania.

Hidroelectrica: is an electric company that produces, trades and supplies energy, and provides ancillary services for Romania's national energy system. The company also provides water management services including raw water, flood protection, and invests in the development, refurbishment, and upgrade of hydro plants and equipment.

Termoelectrica: is a state-owned energy company that provides district heating to five cities, where in some cases it also participates in the transportation network.

Oltenia: is Romanian public energy company active in mining, power generation and local heat supply. The company is the third largest producer of electricity in Romania.

Power sector – unlabelled (vanilla) bond issuance No precedence for bonds issued in the power sector.

Outlook for real economy sustainable bond issuance

The predominance of state-owned enterprises in the Romanian power sector and lack of precedence of unlabelled bonds makes issuance of real economy sustainable bonds an unlikely prospect any time soon. However, a rapidly changing regulatory environment means that those real economy companies that do operate in this space could be incentivised to issue in future, especially when the upside risks of new technologies, government subsidies and funding are considered. In addition, some of the real economy companies operating in the sector form part of multinational companies that may already be active in capital markets, meaning that they can draw on a wider pool of resources and expertise to potentially issue a bond.

Agribusiness sector

Agriculture is central to Romania's economy, with around one-fifth of the population employed in activities related to agriculture – far higher than the European Union average of 4%. The size of the average Romanian farm at 4.42 hectares is much smaller than the EU average of 15 hectares, reflecting the high number of individual agricultural landowners, many of whom operate small scale subsistence and semi-substance farms.

The sector's major exports include grains, oilseeds, livestock, meat, fruit and dairy products, around 70% of which are sold to the EU market. Romania is also Europe's largest sunflower producer as well as a top three producer globally for corn, wheat, and soybeans. Despite its strong export performance, Romania is a net importer of food. In recent years, Romania has consolidated its position among EU agricultural producers, increasing its share of the bloc's total planted area and boosting its grain harvest.

Leading Companies:

Romsilva: is a state-owned company that owns nearly half of Romania's forests and manages around 1 million hectares of private forests.

Promat Comimpex: is a distributer of agricultural products located in Tasnad, Romania. The company's products include chemical fertilizers, plant protection products, diesel fuel for agriculture, seeds, cereals and oilseeds.

Plantagro-Com: is a major agricultural producer of oilseeds and grain, whose main office is located in Vaslui.

Comcereal: is a major Romanian company engaged in the production and sale of agricultural cereals, leguminous grains, and oilseeds.

Napolact: is the largest Romanian brand belonging to Dutch company FrieslandCampina and one of the biggest dairy producers in Romania.

European Drinks & Foods: is among the largest Romanian food companies in Romania. Formed of several brands – including European Drinks, European Foods, Scandic Distilleries, Rieni Drinks and Transilvania General Import Export – the company is specialised in producing food and drink products.

Angst: is a retailer of food products that owns and operates a supermarket chain as well as fish and meat markets in Romania.

Unlabelled (vanilla) bond issuance

No precedence for bonds issued in the agribusiness sector.

Outlook for real economy sustainable bond issuance

The fragmented nature of the agribusiness sector in Romania hinders the potential for sustainable bond issuance. The dominance of state-owned companies and the paucity of project pipelines add further challenges.

The absence of existing bonds may signal that knowledge of how to access the fixed income market is underdeveloped, partly due to a lack of experience – including among the legal and financial profession in Romania who might otherwise be expected to advise on potential issuance.

As a major agricultural producer, Romania must address sustainability challenges in the agricultural sector to effectively decarbonise. This will require additional funds, with the bond market serving as a possible source. As seen globally, the sustainable loan market may offer more appropriate scale instruments for agribusiness market participants.

The government and other stakeholders are likely to prioritise the highest emitting sectors in the country, namely the energy sector. More local experience of sustainable instruments may be required – including sustainability-linked instruments whose KPI structure may be of most relevance to the agricultural sector – before the full range of labelled instruments begins to filter down to smaller players in Romania's economy such as individual agricultural companies.

Transport Sector

Romania's transport sector represents the third largest source of greenhouse gas emissions behind power and industry, with transport infrastructure in the country ranked among the worst in the European Union according to the European Investment Bank.⁶² Less than half of Romania's state-owned rail network is electrified, while the average age of road vehicles in the country is fifteen years, ahead of the EU average of 11. Improvements in both areas are necessary to reduce emissions.

Although road and rail infrastructure in Romania is in severe need of modernisation, the capital Bucharest has a metro system, while the country enjoys access to the River Danube and the Port of Constanta along the Black Sea to support maritime shipping.

In addition, the European Investment Bank is advising the government on possible improvements to infrastructure, including through investments of up to \notin 17 billion earmarked for transport between 2021-2027. These funds are to be made available by the EU, although shortages of skilled workers in this area may hamper developments despite significant funding.

Leading Companies

CFR: is the national railway company and controls all of Romania's rail infrastructure; all corporate rail companies are obliged to collaborate with the firm for this reason.

DB Schenker: is a leading global logistics provider, supporting industry and trade in the global exchange of goods via land transport, worldwide air and ocean freight, contract logistics and supply chain management.

Alstom: is a French multinational rail company and has played an important role in Romania's transition towards a modern and sustainable railway transport, including through rail control, infrastructure and electrification projects alongside maintenance of the metro fleet in the country's capital city Bucharest.

Maersk: is a Danish shipping and logistics company engaged in shipping, port operation, supply chain management and warehousing.

Tarom: is the national carrier and oldest airline in Romania operating across more than 50 destinations and with the youngest fleet in Europe, which consists of 25 aircraft.

STB (societatea de transport Bururesti): is a public transport company in Bucharest that operates the city's trams, buses and metro network.

Unlabelled (vanilla) bond issuance

No precedence for bonds issued in the transport sector.

⁶² Romanian transport infrastructure: A roller coaster ride, European Investment Bank, Accessed April 2023



Outlook for sustainable bond issuance

The government's domination of transportation infrastructure reduces the potential for real economy sustainable issuance in the passenger transport sector, although PPPs would be one way of potentially creating a sufficiently large project pipeline for real economy issuers in the sector.

The existence of a metro system in Bucharest could be another potential source of sustainable issuance, as companies behind these infrastructure projects are regular issuers of sustainable bonds in other countries. Meanwhile the poor state of Romania's railway infrastructure could serve as a further opportunity for sustainable bond issuance, with proceeds going towards crucial infrastructure improvements. The presence of real economy companies in Romania's shipping and logistics sector are another source of potential issuance, as similar profile companies have successfully issued sustainable bonds in other countries. If Romania is not to be left behind in the race towards clean transportation, it may wish to issue bonds with use of proceeds in electric vehicles that could also drastically reduce road-based emissions.



Country focus: Türkiye

Country: Türkiye

Population: 85 million (World Bank 2023)

GDP: \$284.1bn (World Bank 2021)

Fixed income debt market total issuance 2007-2022: \$190.95bn (Dealogic)

Real economy bond issuance 2007-2022: \$38.8bn (*Environmental Finance Data*)

Sustainable bond issuance 2007-Q1 2023: \$8.5bn (Environmental Finance Data)

Real economy sustainable bond issuance 2007-Q1 2023: \$2.1bn (Environmental Finance Data)

Figure 13 : Türkiye – bond issuance 2007-Q1 2023





Source: Dealogic, Environmental Finance Data

Macro-economic overview

Türkiye has seen rapid economic growth over the past two decades, and regularly features among the fastest growing economies in the G20. After implementing measures including ambitious reforms recommended by the IMF, the Turkish economy grew on average 5.1% between 2002 and 2011, drastically reducing levels of poverty in the country. Türkiye now enjoys high middle-income status, with per capita income in 2023 in purchasing power parity terms expected to exceed \$30,000. Population growth is healthy, increasing from 80.3 million in 2017 to 85 million in 2022.

A major manufacturing hub, Türkiye is strategically positioned at the intersection of major trade routes in proximity to emerging markets in the Middle East and Asia and has significantly benefitted in terms of international trade from moves to harmonise its regulatory framework with that of the EU. These developments owe much to Türkiye's EU pre-accession status, as well as its inclusion in a customs union with the bloc since 1995.

The country's major industries include tourism, consumer electronics, agriculture, textiles and motor vehicles. More than half of the working population are employed in the services sector, with around one fifth occupying jobs in the industrial sector and another fifth in agriculture.

Nevertheless, there remain major structural hurdles to economic growth and job creation. High regulatory burdens frequently shelter incumbent businesses from competition, whilst existing labour laws, high severance pay and restrictions on foreign ownership all limit the creation of new formal jobs. These factors are significant contributors to the relatively large size of the informal economy in Türkiye and the suppression of growth among enterprises in the real economy.

The rate of labour participation in the country is also low – especially among women and marginalised groups – with declines in the working age population, skills shortages and poor educational outcomes all severely constraining the supply of available labour.

Foreign direct investment (FDI) and R&D expenditure remain comparatively low, while the proliferation of public-private partnerships (PPPs) in the economy exposes the Turkish state to increased risks from economic shocks. When it comes to fiscal policy, there is an ongoing need to broaden Türkiye's revenue base and increase taxation relative to GDP. More recently, Türkiye has been hit by a series of economic shocks that have drastically worsened conditions in the country. Runaway inflation has led to spikes in production and living costs, increasing the poverty rate and exacerbating the exodus of skilled workers. Türkiye's central bank is not politically independent, with the government recently subjected to criticism and accusations of seeking political gain for its unorthodox policy of keeping interest rates low and borrowing cheap in the face of spiralling inflation.

At the height of the Covid-19 pandemic the government loosened monetary policy and expanded access to credit and has since expended significant costs to mitigate the impact of inflation on the population. Inflationary pressures worldwide have severely dampened demand for exports among some of Türkiye's leading sectors, worsening Türkiye's already serious balance-ofpayments deficit which is fuelled by rising wages and increased consumer spending on imported goods.

In tandem with the country's lax monetary policy, this caused the Turkish lira to lose 30% of its nominal value against the dollar in 2022. Meanwhile doubts surrounding the government's ability to provide support in the form of foreign currency and current monetary policy have prompted rating agencies to downgrade Türkiye's sovereign rating alongside that of dozens of Turkish banks.

Türkiye's outlook is marred by the consequences of two devastating earthquakes that struck southeast provinces of the country on 6 February 2023, killing more than 52,000 people. According to World Bank estimates, the disaster caused about \$34.2bn in direct physical damage; this does not account for costs to future growth and total reconstruction and recovery costs could be at least twice as high. The affected regions account for 16.4% of the population and about 9.4% of the economy; because the different regions of Türkiye are highly integrated, this is likely to act as a significant drag on the entire economy.

Regulations or government policy regarding sustainable debt or sustainability targets

In recent years Türkiye has introduced a wide range of measures with major implications for the development of a more mature market for sustainable debt in the country. The Turkish government signalled the importance it attaches to sustainability though the implementation of new legislation and the renaming of the relevant government department to the Ministry of Environment, Urbanization and Climate Change. In October 2021, Türkiye ratified the Paris Agreement and set a target to reach net-zero carbon emissions by 2053; the country has since pledged to cut greenhouse gas emissions by 41% by 2030 compared to a businessas-usual scenario.

Meanwhile, Türkiye's eleventh National Development Plan covering 2019-2023 sets such objectives for the country as protecting the environment and natural resources; ensuring sustainable management and implementation of environmentally friendly practices in all areas; and increasing environmental awareness across all sections of society. In 2017, Türkiye signed the Declaration on Sustainable Finance, which aims to incorporate environmental and social risk analysis into commercial and financial activities.

In 2022, Türkiye published a draft Climate Change Law with the aim of limiting global temperature rises to below 1.5°C. It did this by setting out the technical and financial requirements necessary for the transition to a low-carbon economy and the realisation of national greenhouse gas emissions reduction targets, as well as strengthening the legal basis for claims made against companies on grounds of not being green. Claims relating to greenwashing may also be made under other, more established frameworks, including Türkiye's Consumer Protection Law, Commercial Code, and Environmental Law.

In 2020, Türkiye's Capital Markets Board published its Sustainability Principles Compliance Framework – a document governing publicly traded companies with the stated aim of encouraging Turkish enterprises to partake in a larger share of global sustainable investment. The framework includes 50 principles under four themes: environment, human and employee rights, and corporate governance.

While implementation remains voluntary, all publicly traded companies operating in Türkiye now carry an obligation to comply or explain with the framework, such that public companies' non-financial disclosures must now include information on whether the sustainability principles have been applied and provide explanations where this is not the case. In addition, they must also detail the environmental and social risks arising from non-compliance. Türkiye introduced its Sustainable Bond Framework in November 2021 as part of its Green Deal Action Plan. The framework, drafted with reference to principles outlined by the International Capital Market Authority (ICMA), is applicable to all sustainable financing instruments issued in the country and is designed to further enhance harmonisation with existing and anticipated EU policy. Currently, the Capital Market Board applies a 50% discount to administrative fees on sustainable instruments to incentivise green investments.

In June 2021, Türkiye unveiled its strategy for Foreign Direct Investment (FDI) outlining measures to align Türkiye's regulatory framework with the UN Sustainable Development Goals and the European Green Deal. Also in 2021, as part of a package of economic reforms, Türkiye announced plans to establish a bond guarantee fund intended to provide additional incentives to investors. The step is expected to strengthen demand for green and sustainable bond issuance.

Sustainable bond issuance

The first sustainable bond issued in Türkiye was the 2016 \$300 million green bond from Türkiye Sınai Kalkınma Bankası (TSKB), which was fourteen times oversubscribed. This privately-owned Turkish industrial and development bank was unusual in using part of the proceeds to meet regulatory capital requirements as well as to finance sustainable lending in sectors that included renewable energy, energy efficiency, and healthcare.

Since this milestone, sustainable issuance in Türkiye has grown to encompass over twenty sustainable bonds, including social, sustainability and sustainability-linked instruments. Sustainable bonds in Türkiye have tended to be issued in USD and typically feature a short tenor of ten years and below. Despite the success of Turkish sustainable bonds, factors inhibiting the growth of the market include the extended timeframes for returns on green investments as well as their perceived risk.

Although the largest share of sustainable issuance in Türkiye continues to be concentrated in the banking sector, to date there have also been several corporate issuances from companies in the real economy.

Details of these real economy issuers are outlined on the next page.

Spotlight on Türkiye sustainable bond issuers

Limak Iskenderun Uluslararasi Liman Isletmeciligi: is one of the largest port operators in the Eastern Mediterranean region offering a variety of services including loading and offloading, terminal handling, storage and towage. The company places emphasis on the importance of social impact and sustainability in its operations, which enable a capacity of 1 million containers across its locations. The sustainability-linked bonds issued by the company are tied to key performance indicators relating to the percentage of diesel-powered vehicles in its fleet that have been successfully converted to electric.

Arçelik: is a household appliances and white goods manufacturer established in 1955 that is responsible for well-known brands such as Grundig and Beko. Among the company's many products are washing machines, refrigerators and vacuum cleaners, which it sells domestically and exports to markets located in continental Europe, the United Kingdom and North Africa. Through its green bond, which was also the first Turkish corporate green bond traded in international markets, the company seeks to contribute to the development of energy efficient products adapted to a circular economy, as well as contribute to initiatives in the field of sustainable wastewater management, pollution prevention, renewable energy and green buildings.

Vestel: is a Turkish multinational active in the manufacture of consumer electronics, household appliances and lighting with locations in seventeen countries and a manufacturing hub that forms one of the largest single-site manufacturing complexes in Europe. Among the company's successes is its position as one of the most recognisable brands in Türkiye and exporter to 157 countries, alongside the role it plays as one of the top companies in the country for R&D expenditure. Debt issued under the company's Green Bond Framework contributes to goals of climate change mitigation, the development of products and processes compatible with a circular economy, and the sustainable management of water.

Aydem Renewables: operates 24 renewable energy power plants throughout Türkiye with a combined capacity of 1,020 MW and is responsible for generating 3,925 GWh of energy each year. The company is unusual for conducting the construction of each of its plants entirely in-house, from the design to the implementation and operation phases, and partakes in the Great Place to Work program designed to achieve a good working culture and employee satisfaction. The company's green bond became the single largest corporate bond issued in Türkiye, attracting significant demand and subscriptions from 131 investors.

Coca-cola Icetek: is a drinks supplier employing some 10,000 serving markets across eleven countries spanning the Middle East and Central Asia. The company places emphasis on accountability, transparency and good corporate governance and strives to be considered a good corporate citizen by all its stakeholders. Its sustainability-linked bond, which became the largest sustainability-linked issuance in Türkiye to date and the first sustainability-linked bond issued by a beverage supplier, was issued at a lower cost that Türkiye's borrowing rate reference to foreign markets.

Table 17: Türki	/e sustainable	bond issuance

Issuer	Currency	Amount (\$m)	lssuer type	Label	Settlement date	Maturity date	Sector
Republic of Türkiye	USD	2,500	Sovereign	Green bond	13/04/2023	13/07/2030	Government – national
Turkiye Emlak Katilim Bankasi	TRL	27	Financial Institution	Green bond	14/11/2022	18/01/2024	Financial
Turkiye Emlak Katilim Bankasi	TRL	3	Financial Institution	Green bond	14/09/2022	10/03/2023	Financial
Coca-Cola Icecek	USD	500	Corporate	Sustainability- Linked bond	21/01/2022	20/01/2029	Food/beverage
Kuveyt Turk	USD	350	Financial Institution	Sustainability bond	16/09/2021	16/12/2031	Financial
VakifBank	USD	500	Financial Institution	Sustainability bond	16/09/2021	01/10/2026	Financial
Aydem Renewable Energy	USD	750	Corporate	Green bond	02/08/2021	02/02/2027	Energy – renewable: other
Vestel	TRY	15	Corporate	Green bond	09/07/2021	16/07/2021 - 07/07/2022	Manufacturing – other, Technology
Akbank	USD	500	Financial Institution	Sustainability bond	22/06/2021	22/06/2031	Financial
Arçelik	EUR	428	Corporate	Green bond	27/05/2021	27/05/2026	Manufacturing – other
Limak Iskenderun Uluslararasi Liman Isletmeciligi AS	USD	370	Corporate	Sustainability- Linked bond	18/05/2021	10/07/2036	Logistics – shipping and maritime
Turkiye is Bankasi	USD	13	Financial Institution	Green bond	25/02/2021	25/02/2026	Financial
Ziraat Bank	USD	600	Financial Institution	Sustainability bond	02/02/2021	02/03/2026	Financial
Turkiye Sinai Kalkinma Bankasi	USD	350	Financial Institution	Sustainability bond	14/01/2021	14/01/2026	Financial
VakifBank	USD	750	Financial Institution	Sustainability bond	08/12/2020	08/01/2026	Financial
Akbank	USD	50	Financial Institution	Green bond	11/08/2020	15/11/2024	Financial
Yapı ve Kredi Bankası A.Ş.	USD	50	Financial Institution	Green bond	21/01/2020	10/12/2024	Financial
Garanti BBVA	USD	50	Financial Institution	Green bond	20/12/2019	20/12/2024	Financial
Turkiye is Bankasi	USD	50	Financial Institution	Green bond	08/07/2019	03/12/2029	Financial
Garanti BBVA	USD	75	Financial Institution	Social bond	18/06/2018	18/06/2024	Financial
Turkiye Sinai Kalkinma Bankasi	USD	300	Financial Institution	Sustainability bond	21/03/2017	29/03/2027	Financial
Turkiye Sinai Kalkinma Bankasi	USD	300	Financial Institution	Sustainability bond	17/05/2016	17/05/2021	Financial

Source: Environmental Finance Data

Power sector

Since the mid-2000s, Türkiye's power sector has undergone a series of transformations. These have included sizeable increases in generation capacity in step with rising demand, the gradual privatisation and liberalisation of the sector, and the introduction of a wholesale market in the form of the Istanbul Energy Exchange.

Beginning with renewable energy legislation enacted in 2005, Türkiye has spearheaded a push towards renewables with the result that the country is often held up as an exemplar for energy transition among emerging economies.

As part of Türkiye's strategic plan 2019-2023 the Ministry of Energy and Natural Resources placed special emphasis on increasing the share of domestically produced and renewable energy, investment in nuclear energy and infrastructure for energy distribution, energy efficiency, and R&D to boost the manufacture of locally developed technology to be used in the expansion of renewables.

Since 2010, Türkiye has become Europe's fastestgrowing energy consumer; with per capita energy consumption below the OECD average, there remains considerable scope for further demand.^{63 64} Due to its geography, the country boasts significant potential for solar generation, with hydropower, wind and solar all featuring prominently in Türkiye's energy mix.

As a result, the country ranks fifth in Europe and twelfth in the world in terms of installed renewable energy capacity, and first and second in Europe for geothermal and hydroelectric energy respectively. As the number of international companies with decarbonisation goals operating in Türkiye rises, it is expected that demand for supply of renewable and clean energy will only increase.

Türkiye's Renewable Energy Law provides feed-in tariffs, incentives for use of domestically manufactured components in energy systems, and reduced fees for use of public land for renewables. Nuclear power does not currently form part of Türkiye's energy base; construction of the country's first nuclear power plant in Akkuyu in Mercin Province commenced in 2015. The facility is due to come online in 2023, with preparatory work for a further two nuclear power stations underway.

There are currently no restrictions on foreign investment in the energy market, although transmission operations are performed exclusively by state-owned entities and the amount of energy generated by a single company must not exceed 20% of national generation.

Türkiye has often appeared to have successfully balanced the twin imperatives of undergoing energy transition and sustaining economic growth – between 2018 and 2021, the country succeeded in increasing overall electricity generation by 9% whilst slashing generation from coal by 8% due to increases in renewables.⁶⁵ Over the same period, Türkiye ramped up its use of natural gas over coal.

More recently, however, the country has experienced several setbacks on its path towards energy transition, potentially undermining the country's status as a model for others to follow. In 2022, amid global shortages in natural gas, generation from coal increased, causing emissions to reach their highest levels since 2018. With energy demand outpacing domestic production capacity, Türkiye is highly dependent on foreign supplies of energy that have recently included the use of discounted Russian coal.

Türkiye's success as a manufacturing hub means that it requires dependable sources of base power for the smooth functioning of production lines that potentially intermittent renewable sources are not always able to provide. At the same time, the increased frequency of droughts in Türkiye means that the country's status as a leading player in hydropower is under threat. With the availability of gas constrained, the country has increasingly turned to coal to meet the energy gap.

Leading Companies

Enerjisa Enerji: Among Türkiye's leading companies in electricity distribution, Enerjisa Enerji services some 10.3 million customers across fourteen Turkish provinces. First incorporated in 1996, Enerjisa Enerji has grown to employ 11,000 people and was listed on Borsa Istanbul in 2018; the company currently features on the BISRT Sustainability Index of companies that trade on the exchange which perform strongly when it comes to corporate sustainability. Enerjisa Enerji prides itself on its approach to sustainability and has become signatory to such United Nations initiatives as the Global Compact and Women's Empowerment Principles, as well as principles established by anticorruption organisation Transparency International.

Electricity Generation Company (EÜAŞ): Founded in 2001, EÜAŞ is a state-owned enterprise that seeks

⁶³ Column: Model no more? Türkiye's energy transition reversed in 2022, Reuters, Accessed April 2023

⁶⁴ OECD Economic Surveys: Türkiye 2023, OECD, February 202365 Column: Model no more? Türkiye's energy transition reversed in 2022, Reuters, Accessed April 2023

Pricing date	Maturity date	Issuer	Amount (\$m)	Sector	Issuer type
26/07/2021	02/02/2027	Aydem Yenilenebilir Enerji AS	750	Utility & Energy-Diversified	Corporate
27/05/2021	01/06/2026	Zorlu Yenilenebilir Enerji AS	300	Utility & Energy-Electric Power	Corporate

Table 18: Türkiye power sector - unlabelled (vanilla) bonds

Source: Environmental Finance Data

to provide the electrical energy needed for Türkiye's growth and development whilst ensuring reliability and positive economic and environmental outcomes. The company operates Türkiye's publicly owned power stations, including hydraulic power plants, and accounts for around one quarter of installed generation capacity nationally.

Türkiye Electricity Generation-Transmission Corporation (TEİAŞ): is a state-owned operator with a monopoly on the provision of transmission services in Türkiye, although there are plans to sell a minority stake to the private sector. The company currently represents one of the largest electricity companies in Europe, employing more than 16,000 people, and operates the balancing power and ancillary services market. Since 2010, Türkiye's electricity system has operated in synchronous parallel mode with the European Network of Transmission System Operators for Electricity (ENTSO-E).

Zorlu Energy: operates a wide portfolio of services including electricity generation, energy and gas distribution, and solar panel installation. In addition, Zorlu constructs, manages and maintains power plants and EV charging stations, with the company's portfolio encompassing geothermal, wind, hydroelectric and natural gas. Meanwhile, Zorlu's operations in solar spans some twenty-six countries across Eastern Europe, Eurasia and the Eastern Mediterranean.

Unlabelled (vanilla) bond issuance

There have been two recent unlabelled bond issuance in the Turkish power sector – a \$750 million bond from Aydem Yenilenebilir Enerji and a \$300 million bond from Zorlu Yenilenebilir Enerji, both of which were issued in 2021.

Outlook for sustainable bond issuance

The outlook for real economy sustainable bond issuance in the Turkish power sector is strong. There are supportive government regulations and targets for the sustainable development of the sector and a clear need pathways for new projects.

There is some precedence in the sector for raising capital

through bonds and Avdem Renwable Energy's 2021 \$750m green bond shows there is investor appetite.

Agribusiness

Türkiye's agriculture sector ranks among the top ten largest globally, with half of the country's land employed for agricultural purposes and nearly a quarter of the population employed in the sector.⁶⁶ The agricultural sector has contributed significantly to Türkiye's economic rise in recent years. According to World Bank data, value add in the Turkish agricultural sector increased from \$27.5bn in 2000 to \$48.9bn in 2019 in real terms prices.⁶⁷

Meanwhile calculations based on data from the International Trade Centre show Turkish exports of agricultural and food products increased from \$4bn in 2001 to \$17.7bn in 2019.⁶⁸ Over the same period, the share of agriculture among total exports decreased from 13% to 10.4%, reflecting increased growth and diversification in the economy overall.⁶⁹

Among Türkiye's main agricultural products are wheat, sugar beets, dairy, poultry, cotton and tomatoes, with the country enjoying a positive trade balance in agricultural products despite a reliance on some imports of animal feed to service Türkiye's rapidly growing meat and poultry sector. Turkish agribusiness is notable for its diversification, with the country also serving as the leading exporter of apricots and hazelnuts globally.

Türkiye's food processing industry is well developed, with the country serving both the domestic market and as a hub for exporting regionally to markets in Europe and the Middle East. Although the weight of agribusiness as a proportion of Türkiye's economy is gradually declining, farming remains integral to rural development and employment in the country.

⁶⁶ Türkiye – Country Commercial Guide, International Trade Administration, Accessed April 2023

^{67, 68, 69} Agriculture of Türkiye: Production, Trade and Policy Reforms, Eurasian Research Institute, Accessed April 2023



Pricing date	Maturity date	Issuer	Amount (\$m)	Sector	Issuer type
28/07/2006	10/08/2011	Yasar Holdings SA	254	Chemicals-Fertilizers	Corporate
04/10/2010	07/10/2015	Yasar Holdings SA	250	Chemicals-Fertilizers	Corporate
18/10/2012	01/11/2022	Anadolu Efes Biracilik ve Malt Sanayii AS	500	Food & Beverage-Beer	Corporate
05/04/2013	30/05/2018	Coca-Cola Icecek AS	100	Food & Beverage-Non- Alcoholic Beverages	Corporate
05/04/2013	30/05/2020	Coca-Cola Icecek AS	80	Food & Beverage-Non- Alcoholic Beverages	Corporate
05/04/2013	30/05/2023	Coca-Cola Icecek AS	120	Food & Beverage-Non- Alcoholic Beverages	Corporate
25/09/2013	01/10/2018	Coca-Cola Icecek AS	500	Food & Beverage-Non- Alcoholic Beverages	Corporate
30/10/2014	06/05/2020	Yasar Holdings SA	250	Chemicals-Fertilizers	Corporate
12/09/2017	19/09/2024	Coca-Cola Icecek AS	500	Food & Beverage-Non- Alcoholic Beverages	Corporate
21/10/2020	30/10/2025	Ulker Biskuvi Sanayi AS	650	Food & Beverage-Flour & Grain	Corporate
22/06/2021	29/06/2028	Anadolu Efes Biracilik ve Malt Sanayii AS	500	Food & Beverage-Beer	Corporate
13/01/2022	20/01/2029	Coca-Cola Icecek AS	500	Food & Beverage-Non- Alcoholic Beverages	Corporate

Table 19: Agribusiness – unlabelled (vanilla) bond issuance

Source: Environmental Finance Data

This is despite decreases in the share of workers being employed in the sector. It is also a key source of Turkish exports and manufacturing, such as the use of domestically produced cotton in the local textile industry. Despite the numerous advantages enjoyed by Turkish agribusiness, investment is required to update production techniques, boost productivity, and adapt to climate change.

Leading companies:

Hektaş: is among the leading companies in the scope of plant protection, plant nutrition, seed and animal health products with sustainable agriculture practices applied in Türkiye. The company seeks to promote sustainable agriculture practices and meet growers' needs and expectations with offerings that respect people, the environment and nature. Among the company's products are plant protection services specifically adapted to Türkiye's crop range and environment.

Gübretaş: is active in the production and marketing of chemical fertilisers, including related solid, liquid, powder-based and organic products. The company also provides soil analysis services to farmers and advises its customers on appropriate fertiliser products according to land type. The company's production activities are mainly carried out in its Yarimca facilities, consisting of three plants, as well as bagging, warehousing and storage facilities.

Turk Traktor Ve Ziraat Makineleri: is engaged in the manufacture of agricultural machinery, tractors, harvesting machinery and earth-moving machinery. In addition, the company manufactures allied technologies including gear boxes, transmission boxes, engine blocks, cylinder heads and hydraulic lifters. Most of the company's products are manufactured at its Ankara and Erenler Plants, with distribution supported via a network of sales and spare parts dealers.

Tümosan: manufactures diesel engine and tractors under the brand names Tumosan, Turk Traktor and Otoyol. Diesel engines designed and manufactured by the company include those intended for the agriculture, marine and industrial sectors.

Bagfas Bandirma Gubre Fabrikalari: manufactures, imports and exports chemical fertilisers and acids, including triple phosphate, diammonium phosphate, potassium and crystal ammonium sulfate, and sulphuric and phosphoric acids. The company also supplies fertilisers such as urea, ammonium nitrate and calciumammonium nitrate, as well as customized fertilisers.

Unlabelled (vanilla) bond issuance

Among Turkish companies in the real economy active in agribusiness and food and drink there has been more than \$4.2bn in unlabelled bond issuance to date (see table 19). The food and drink sector has benefitted most from access to capital markets, accounting for 9/12 of bonds; the remaining bonds have been from a single issuer, Yasal Holdings, which is active in chemical fertilisers. Among the most frequent issuers has been drinks manufacturer Coca-Cola Icecek, which to date has issued six unlabelled bonds.

Outlook for real economy sustainable bond issuance

As a core part of Türkiye's economy and subsequent carbon emissions, agribusiness is to play a key role in the greening of the country's overall economy and will require substantial investment to do so. It is therefore likely that the sector will need to turn to the capital markets to raise the required funds to enable this transition.

In some of Türkiye's common agribusiness industries where a clearly green use of proceeds may be harder to determine, such as among fertiliser manufacturers, it may be most appropriate to issue sustainabilitylinked or transition instruments. In other areas such as farming, green use of proceeds such as sustainable water management and the management of living natural resources may be determined. In either case, prior industry experience in the bond markets puts Turkish agribusiness in a strong position to issue future sustainable debt.

Transport sector

Although Türkiye's transportation network currently does not meet the average standards of European Union member states, the country is nonetheless making a concerted effort to comply with EU rules in this area. This is largely because a significant portion of its trade is with the European Union, which requires regulatory harmonisation.

Improvements in Türkiye's transportation infrastructure are supported by the Turkish Ministry of Transport and Infrastructure's 2053 Transport and Logistics Master Plan, which outlines measures to cement Türkiye's position as a hub for high value-added production and exports. Türkiye boasts a substantial maritime industry, with over 200 ports and shipbuilders – including socalled "green ports". The country is also set to benefit from its central position as a transport corridor for China's Belt and Road initiative, which seeks to better integrate China with trade and infrastructure across Eurasia.

Türkiye's transportation sector is currently served by moderate rail network coverage, while freight continues to be predominantly road based. There are plans to revamp the country's transportation network, including government initiatives to promote high-speed rail, a shift to rail freight, electrification, and the development of metro systems in larger cities. Many related projects are either underway or due to break ground to accommodate the needs of an increasingly industrialised country.

Examples include the upcoming the \$3.5bn Grand Istanbul Tunnel project, an undersea highway and railway linkage that will cross the Bosporus strait, and Canal Istanbul, a \$15bn project designed to connect the Marmara Sea with the Black Sea. When it comes to electric vehicles (EVs), however, the expansion of this industry is dampened by the lack of government regulations and incentives, as well as the underdevelopment of relevant infrastructure to accommodate EVs.

Leading Companies

Turkish Airlines: is Türkiye's national carrier and provides domestic and international passenger and cargo transport services. The company operates both air transport and technical maintenance divisions, including the provision of repair and maintenance services in the civil aviation and airline sector more broadly.

KOC holdings: is a leading automotive manufacturer, including buses for public transportation, light weight trucks for use in the logistics industry, and armoured vehicles for use in the defence sector. A major conglomerate, KOC holdings is also active in the energy, financial and consumer goods sectors.

TCDD Taşımacılık: is a state-owned rail company responsible for the operation of the passenger and freight railway network in Türkiye that utilises infrastructure owned by the Turkish State Railways. Services offered by the company include logistical centres and railway ferries.

Istanbul Metro: operates an urban rail system of some 214 km in length, delivering transportation services to around 2 million customers every day across 18 rail systems in Istanbul. The company's services span tram, light rail, funicular and aerial cable car lines.

TK Tuzla Shipyard: the largest ship repair facility in Türkiye located in the suburb of Tuzla, north of Istanbul,

Pricing date	Maturity date	Issuer	Amount (\$m)	Sector	Issuer type
18/04/2013	24/04/2020	KOC Holding AS	750	Auto/Truck-Manufacturers	Corporate
01/08/2013	12/08/2020	Mersin International Port Management Inc	450	Transportation-Ship	Corporate
07/11/2014	14/11/2021	Global Liman Isletmeleri AS	250	Transportation-Ship	Corporate
19/03/2015	15/09/2028	Turkish Airlines Inc (Turk Hava Yollari AO)	328.3	Transportation-Airlines	Corporate
09/03/2016	15/03/2023	KOC Holding AS	750	Auto/Truck-Manufacturers	Corporate
05/03/2019	11/03/2025	KOC Holding AS	750	Auto/Truck-Manufacturers	Corporate
07/11/2019	15/11/2024	Mersin International Port Management Inc	600	Transportation-Ship	Corporate
27/04/2021	30/04/2026	Pegasus Hava Tasimaciligi AS	375	Transportation-Airlines	Corporate
11/05/2021	10/07/2036	Limak Insaat Sanayi San Ve Tic AS Türkiye	370	Transportation-Airports	Corporate

Table 20: Transport sector – unlabelled (vanilla) bond issuance

Source: Environmental Finance Data

TK Tuzla provides drydocking, repair and conversion services.

Tersan Shipyard: A major global shipyard, Tersan Shipyard offers a broad range of services including the construction of new vessels, ship repair, docking and conversion. The company is also active in ship owning, ship agency services and renewable energy.

Unlabelled (vanilla) bond issuance

Existing issuance in the Turkish transport sector is well established, reaching \$4.63bn in value over the past decade (see table 20). Issuance in the sector is also distributed among a diverse set of issuers that includes airport and port operators, airlines, and manufacturers. The success of unlabelled bond issuance in Turkish transportation demonstrates ongoing investor confidence in the sector and serves as the basis for a more mature market in fixed income in this area, which could include alternative instruments.

Outlook for sustainable bond issuance

To date, there has been one sustainable issuance in the Turkish transport sector – a sustainability-linked bond worth \$370 million from Limak Iskenderun Uluslararasi Liman Isletmeciligi in May 2021. The KPI on the transaction was the percentage of diesel port vehicles converted to electric.

Yet there exists much potential for further real economy sustainable issuance in the sector. For example, many infrastructure projects in Türkiye have been funded using a build-operate-transfer (BOT) model, whereby private companies finance and operate projects for a predetermined period – typically between 20-30 years – before transferring ownership to the public sector. This type of public-private partnership enables a wider range of stakeholders, including those in the government, to steer commercial development in a more sustainable direction.

Although ports, freight and shipping are high emitting sectors, they are also central to Türkiye's export-oriented economy and are highly likely to directly benefit from economic growth. In this way, sustainable bonds from these industries carry a dual opportunity for investors, allowing them to facilitate the transition to cleaner technologies whilst investing in an expanding industry. There exists a strong precedent for sustainable bonds in the global maritime and shipping sector, with 44 recorded to date. Collectively, these account for around \$9.5bn in value.

Existing real economy bonds from the Turkish transport sector have equipped issuers with ample experience in capital markets, preparing the ground for more labelled instruments in future. In some cases, large conglomerates active in the transportation sector such as KOC Holdings possess a highly diversified portfolio. They are therefore in an even stronger position to offer a range of projects suitable for sustainable investment.



Country focus: Kazakhstan

Country: Kazakhstan

Population: 19.2 million (World Bank 2022)

GDP: \$220bn (World Bank 2022)

Fixed income debt market total issuance 2007-2022: \$55.37bn (Dealogic)

Real economy bond issuance 2007-2022: \$5.85bn (Dealogic)

Sustainable bond issuance 2007-Q1 2023: \$0.204bn (Environmental Finance Data)

Real economy sustainable bond issuance 2007-Q1 2023: \$0.113bn (Environmental Finance Data)

Figure 14 : Kazakhstan - bond issuance 2007-Q1 2023





Source: Dealogic, Environmental Finance Data

Macro-economic overview

With a GDP of \$220bn, Kazakhstan's economy is the largest in Central Asia and has expanded rapidly in recent years on the back of commodity exports and the development of the country's oil and gas sector, with annual growth averaging 10% during 2000-2007 and nearly 6% during 2010-2014.^{70 71} Kazakhstan has a growing population, with half of the population under 30, and is a member of the Eurasian Economic Union encompassing Russia and several other post-Soviet states. State-owned enterprises feature prominently in its economy.

Nevertheless, the country has benefited in recent years from significant quantities of foreign direct investment (FDI) which, according to World Bank data, topped \$25bn in 2022 – some 11.5% of GDP.⁷² Although FDI is often concentrated in the energy sector, it includes China's Belt and Road Initiative, which has for example directed funds towards the construction of expansive railway links between the two countries. Named the Trans-Caspian International Transport Route, the project has the potential to link China's rail freight with the EU market via Kazakhstan.

Despite these features, Kazakhstan currently faces multiple challenges. Although a member of the World Trade Organisation, the country performs poorly across all indicators measured by the World Governance Indicators, particularly when it comes to corruption and political accountability.⁷³ Kazakhstan continues to be disadvantaged by inadequate infrastructure and obstacles arising from non-tariff barriers to trade.

The country's banking sector remains underdeveloped, restricting access to finance at the same time as the predominance of state-owned enterprises in the economy supresses private investment.

Whilst the value of the country's exports has increased due to the rising price of commodities, its economy is severely lacking diversification and is highly dependent on demand for oil and gas for its base. Indeed, the Global Economic Diversification Index (GDE) places Kazakhstan towards at the end of its ranking – 86 out of 103 countries, while hydrocarbons account for up to 60% of the value of exports.⁷⁴ Kazakhstan is currently experiencing high inflation of around 20%, with prices paid for imported goods drastically outpacing those paid for domestically produced commodities. These inflationary pressures have exacerbated a trend towards dollarisation in the economy and have resulted in rising poverty rates despite falling unemployment. In 2022 violent clashes over government plans to lift price caps on fuel broadened into a more generalised protest against poverty, corruption and inequality.

The fallout from Russia's invasion of Ukraine and the introduction of sanctions against Moscow present both challenges and opportunities for Kazakhstan. Through such arrangements as the Eurasian Economic Union, the country's economy is highly integrated with that of Russia, with the result that the ability of sanctions to depress the Russian economy are also felt in Kazakhstan. On the other hand, multinational companies operating in Central Asia have expressed their willingness to relocate to Kazakhstan from Russia, while Russia's increasing isolation means that the Trans-Caspian International Transport Route is emerging as an appealing alternative to the established Trans-Siberian railway as a way of transporting freight.

Kazakhstan remains dependent on Russia for security guarantees and, as a landlocked country, is acutely sensitive to overland supply-chain disruption. Kazakhstan has secured alternative routes for its exports in recent years, including via integration of its trade routes with the "Baku-Tbilisi-Ceyhan" Caspian Sea pipeline that does not transit through Russia. The country remains reliant on a pipeline owned by the Caspian Pipeline Consortium to take its oil to the Black Sea. In July 2022, a Russian court ordered a suspension of activities along the route for thirty days, threatening major disruption.

Regulations or government policy regarding sustainable debt or sustainability targets

Kazakhstan is a signatory to the Paris Agreement and has pledged to attain carbon neutrality by 2060. In addition, the country is committed to increasing alternative and renewable energy to 50% of total energy production by 2050 and has implemented measures to facilitate the emergence of a well-governed market for sustainable debt.

In 2017, the country adopted the Concept of Green Financial System identifying green bonds as one of the

 ⁷⁰ GDP (current US\$) - Kazakhstan, World Bank, Accessed April 2023
71 Kazakhstan Country Climate and Development Report, World Bank, November 2022

⁷² Balance of Payment Statistics 2022, <u>Bank of Kazakhstan, Accessed April</u> 2023

⁷³ Worldwide Governance Indicators, World Bank, Accessed April 202374 Global Economic Diversification Index 2023, World Government Summit 2023, February 2023

Issuer	Currency	Amount (\$m)	Issuer type	Bond label	Settlement date	Maturity date	Sector
Development Bank of Kazakhstan	KZT	33	Financial Institution	Green bond	29/03/2023	28/03/2026	Financial
Development Bank of Kazakhstan	KZT	22	Financial Institution	Green bond	27/03/2023	27/03/2038	Financial
Kazakhstan Electricity Grid Operating Company (KEGOC)	KZT	71	Agency	Green bond	21/12/2022	21/12/2037	Power
Development Bank of Kazakhstan	KZT	33	Financial Institution	Green bond	13/09/2022	13/09/2027	Financial
Samruk Energy	KZT	42	Corporate	Green bond	25/11/2021	25/05/2028	Energy - non-renewable, Energy - renewable: other
Damu Entrepreneurship Development Fund	KZT	0.5	Financial Institution	Green bond	11/08/2020	11/08/2023	Financial

Table 21: Kazakhstan sustainable bond issuance

Source: Environmental Finance Data

main instruments to be brought onto the financial market. By 2018, the Kazakhstan Stock Exchange had signed on to the UN Sustainable Stock Exchanges Initiative and introduced an ESG reporting methodology, with disclosure of major ESG aspects becoming mandatory in 2021. Relatedly, a National Governance Code was introduced mandating companies listed on the exchange alongside government companies to make certain disclosures.

At around the same time, the Astana International Exchange introduced its Green Bond Rules. These are unique to Kazakhstan among Commonwealth of Independent States (a regional intergovernmental organisation in Eurasia) countries and are derived from ICMA's Green Bond Principles and the Climate Bonds Standards issued by the Climate Bonds Initiative.

Significantly, in December 2021 Kazakhstan adopted its Taxonomy of Green Projects to be Financed through Green Bonds and Green Loans. Developed in accordance with Kazakhstan's Environmental Code, which covers such aspects as forest and soil protection, environmental education, and protection of the northern part of the Caspian Sea, the Taxonomy lays the groundwork for the rollout of sustainable finance in Kazakhstan.

Among the use of proceeds outlined in the framework are efficient use of natural resources, reductions in negative environmental impact, energy efficiency, energy conservation, and climate change mitigation and adaptation. Significantly, accompanying norms in the Entrepreneurial Code were also approved, incentivising green debt through the introduction of subsidies on green loans and of coupon rates on green bonds. Among those most active in promoting the development of sustainable finance in Kazakhstan is the Astana International Finance Center (AIFC), which launched its Green Finance Centre in 2018 to promote green finance in Kazakhstan and neighbouring countries. In 2021, the organisation introduced several initiatives relating to sustainable finance, including the AIFC Statement of Commitment to Sustainable Finance Principles and a framework for ESG reporting for companies listed on the Astana International Exchange.

Further, AIFC helped implement the Regional Chapter of Green Investment Principles for the Belt and Road Initiative. The principles are a framework jointly developed by the Green Finance Committee of the China Society for Finance and Banking and the City of London Corporation's Green Finance Initiative and consist of seven pillars designed to ensure the sustainability of corporate governance.

Sustainable bond issuance

In August 2020, Kazakhstan issued its first sustainable bond with a 200 million Kazakhstani tenge (\$0.5m) green issuance from Damu Entrepreneurship Development Fund, a government agency supporting private enterprise. The country has gone on to issue nearly 39bn Kazakhstani tenge (\$90m) in green and social bonds. This includes an 18.4bn Kazakhstani tenge green bond from Samruk Energy, a subsidiary of Kazakhstan's sovereign wealth fund, which was listed on the Astana International Exchange in November 2021. The bond, which adheres to ICMA's Green Bond Principles, will mature in May 2028 and has a coupon of 11.40%. In December 2022 state owned Kazakhstan Electricity Grid Operating Company (KEGOC) issued a green bond worth \$71m with a rate of 3% and use of proceeds covering renewable energy and energy efficiency.

The first green loan in Kazakhstan was signed by transport contractor Batys Transit in 2021, with the Eurasian Development Bank extending funds in the amount of 3.6bn Kazakh tenge (\$11 million USD) for the construction and operation of street lighting networks in the city of Atyrau. The Green Finance Framework used to secure the financing was developed in partnership with AIFC and was fully compliant with the Green Loan Principles outlined by the Loan Market Association.

Power sector

Kazakhstan is the largest energy producer in Central Asia and is among the most energy intensive economies. As recently as 2020, oil accounted for 50% of Kazakhstan's domestic energy production, with coal accounting for 28% of energy production and natural gas 17%.⁷⁵ When it comes to electricity generation specifically, coal is responsible for 70% of power.⁷⁶ Gas-fired power accounts for about 20% of generation, with much of this concentrated in the oil and gas producing western power zone, which is isolated from the rest of the country.

Demand for fossil fuels in Kazakhstan's economy is mostly met by domestic supplies; the country is the largest producer of oil in the region and one of the largest of natural gas. Overall, the country possesses more energy than it needs for domestic consumption, with this energy surplus enabling it to export large quantities of fossil fuels.

Kazakhstan has been successful in attracting major international investment into the oil and gas sector, although a worldwide push towards decarbonisation is making companies more selective when it comes to these investments. The high costs associated with new upstream projects and the long export routes involved are other factors that may limit investment.

The government's 2013 Concept for the Transition to a Green Economy puts in place targets to reach 50% of electricity generation from "alternative or renewable" sources by 2050, including using nuclear power.⁷⁷ The document proposes a 15% reduction in carbon emissions from electricity generation by 2030, rising to 40% by 2050.⁷⁸

75-78 Kazakhstan 2022 Energy Sector Review, International Energy Agency, June 2022

These targets are to be met by phasing out ageing infrastructure in the power sector; increasing renewable energy; and promoting energy efficiency. Hydropower forms a significant part of Kazakhstan's renewables portfolio; the country typically produces between 1-2% of its electricity from renewable sources, although the government aims to increase this to 15% by 2030.

The government has set out a programme for wind farm construction with the introduction of 2,000 MW by 2030. Although Kazakhstan does not currently possess a nuclear power plant – the country's only nuclear power plant was shut down in 1999 - it ranks first in the world in uranium deposits and mining and is already involved in some stages of the nuclear fuel cycle. The government has openly discussed the idea of building a new commercial nuclear plant in future.

Despite Kazakhstan's substantial potential for renewable power generation – two thirds of Kazakhstan's territory is suitable for solar generation – the country's coal reserves are among the largest in the world and relatively inexpensive to mine, meaning that at present renewables must compete with cheaper sources of fossil fuels.

Leading Companies:

Kazakhstan Electricity Grid Operating Company (**KEGOC**): manages the National Power Grid of the Republic of Kazakhstan and is responsible for electricity transmission in the national power grid, the technical aspects of the electricity supply and consumption in the grid, and management of electricity production and consumption balancing.

Mangistau Regional Electricity Network Company JSC: provides transmission and distribution of electricity in the Mangistau region of Kazakhstan alongside electrical repair and maintenance services.

Samruk Energy: is the largest diversified holding company successfully integrated into the international power balance; the company aims to build highly efficient power supply systems to ensure the sustainable development of all Kazakhstan's sectors.

KazMunayGas: is a state-owned oil and gas company that manages hydrocarbon exploration, production, processing and transportation assets.

Qway Energy: is an independent project developer of renewable energy with focus on large-scale photovoltaic systems and the largest privately-owned developer of renewable energy in Kazakhstan.

Pricing date	Maturity date	Issuer	Amount (\$m)	Sector	Issuer type
13/12/2012	20/12/2017	Samruk-Energy AO	500	Utility & Energy-Electric Power	Public Sector

Table 22: Power sector - unlabelled (vanilla) bond issuance

Source: Environmental Finance Data

Total Eren: Although mainly involved in oil and gas production in Kazakhstan, Total Eren was among the first international players to develop renewable energy projects in the country. In 2019 Total Eren also began construction of two photovoltaic solar power plants located in the Zhambyl and Kyzylorda regions.

Risen Energy: is a China-based developer, manufacturer, and distributor of solar photovoltaic application products. The company offers solar cell slices and modules such as HJT PV modules, monocrystalline PV modules; and energy storage systems for utility, commercial, industrial, and residential applications.

Eni: the company has been present in Kazakhstan since 1992 carrying out activities in the exploration and production sector and entered the renewable energy production sector in the country with the construction of the Badamsha 1 wind farm in 2020 followed by cooperation agreements with KazMunaiGas for the development of renewable, hydrogen and biofeedstock projects in Kazakhstan.

Unlabelled (vanilla) bond issuance

In the past 15 years, there has been just one unlabelled bond in Kazakhstan's power sector since – a \$500 million issuance from Kazakhstan's largest energy holding company, Samruk Energy (see table 22).

Outlook for real economy sustainable bond issuance

The opportunities for sustainable issuance in the real economy among Kazakhstan's power sector are considerable. This is partly due to the country's geography, which makes the country highly suitable for solar and hydropower alongside other forms of renewable energy. In addition, there are opportunities to invest in the transmission network to improve efficiency and curtail energy losses.

In addition, the country's sustainability policy and renewables targets could result in incentives provided to energy companies to facilitate the transition to cleaner forms of power. Still, the dominance of stateowned enterprises in the sector and the relative lack of experience in issuing even unlabelled bonds may initially limit the prospects for real economy issuance.

Agribusiness Sector

Kazakhstan's agricultural sector accounts for 5.1% of the country's GDP and is responsible for employing around 30% of the economically active population.⁷⁹ Kazakhstan is also Central Asia's largest exporter of grain, while barley, cotton, sunflower seeds, and rice are also major crops in the country. Animal husbandry remains an important economic activity, with around three quarters of the country's agricultural land used for grazing.

Around 70% of Kazakhstan's land is suitable for agricultural production, although only 30% is currently used for agricultural production. Despite being a landlocked country, fish are an important part of Kazakhstan's agricultural sector, with the country's reservoirs, rivers, and the Caspian Sea all rich in valuable fish species.

Small holdings and households are some of the main agricultural producers, accounting for more than half of total agricultural output, with large agricultural enterprises accounting for around a fifth of output and collective farms one quarter. The dominance of households in livestock production inhibits large-scale industry expansion, while productivity in the livestock sector is also considerably lower than international standards. Around 90% of machinery currently in use in Kazakhstan is nearing the end of its lifecycle and is due to be replaced, creating challenges as well as opportunities.

At the close of 2021, Kazakhstan's government announced its 2021-2030 Agricultural Development Policy, which outlined measures related to the livestock sector, cooperatives, state subsidies, new plant breeding and seed development regulations, combating climate change, import substitution policies, and the use of geographical information systems. Of note were references to a "strategic multinational company" that had expressed a desire to invest in the country and the introduction of genetically engineered plant varieties and molecular biology methods to adapt to climate change. In addition, the document calls for greater use of satellite

⁷⁹ Kazakhstan – Commercial Guide, International Trade Administration, Accessed April 2023

Pricing date	Maturity date	Issuer	Amount (\$m)	Sector	Issuer type
17/05/2013	24/05/2023	KazAgro National Management Holding	1000	Agribusiness-Agriculture	Public Sector
15/05/2014	22/05/2019	KazAgro National Management Holding	823	Agribusiness-Agriculture	Public Sector
15/02/2021	26/03/2026	FCC OAO	95	Food & Beverage-Flour & Grain	Corporate

Table 23: Agribusiness sector - unlabelled (vanilla) bond issuance

Source: Environmental Finance Data

technology to determine acreage. On the other hand, the policy warns that water shortages may lead to declines in crop yield and details that government subsidies have increased, which may remove incentives to increase efficiency.

To reach its full potential, however, Kazakhstan's agricultural sector must improve upon low productivity and yields and tackle high transportation costs, logistics and infrastructure limitations. It must also secure better access to markets such as China while expanding the availability of accessible credit. Still, the dominance of state-owned enterprises and the absence of private land ownership continue to be major obstacles to growth.

Leading Companies:

KazAgro: is a leader in the Kazakhstan agro-industrial complex leasing market and aims to meet the needs of the industry for modern and high-tech equipment.

KAP Holding: is an agricultural supply chain company engaged in the provision of agricultural machinery, trucks and other services such as trading, sales of chemicals and fertilizers, and the storage of agricultural crops.

KazFoodProducts: is a leading agricultural holding company whose services range from food production to cultivation to the processing of agricultural products. Olzha Agroholding: Established in 2018, Olzha Agro is a holding company active in the crop production industry from its main office in Kostanai.

KazExportAstyk: is one of the top three grain companies in the Republic of Kazakhstan operating in the Northern Kazakhstan and Akmolinskiy regions and is active in the production and export of grain, oilseeds, flour, sales and distribution of farm machinery and spare parts, plant protection products, fertilizers and seeds, and investments in agriculture.

Agrocenter Astana: is located in Astana, Kazakhstan and is engaged in farming, agricultural services, and agriculture business activities.

Unlabelled (vanilla) bond issuance

Over the past decade, there have been three issuances in the agriculture sector in Kazakhstan from two issuers (see Table 23). In the case of bonds issued by agricultural holding company KazAgro, these have been large, with one bond of \$1bn and another of more than \$800 million in value.

Outlook for real economy sustainable bond issuance

Kazakhstan's agricultural sector encompasses large holding companies that are in a relatively strong position to issue sustainable debt through access to a wider set of potential projects among their wide range of subsidiaries. However, the prospects for real economy sustainable issuance are constrained by the prevalence of stateowned enterprises in the economy. The prospects for issuance more generally are dented by previous debt defaults among several agricultural holding companies in Kazakhstan in recent years. These companies tend to be highly leveraged and suffer debt stress.

Transport Sector

Across rail, road, maritime, aviation and the pipeline industry, transportation and associated logistics represented 11% of Kazakhstan's GDP in 2022; of these, rail was the largest by turnover at 52% of value, followed by road at 23.5%.⁸⁰ As a landlocked country, Kazakhstan faces challenges when it comes to connectivity, including high transportation costs, but has benefited from government support and international investment.

Examples include Kazakhstan's 2004-2006 Programme for the Restructuring of Railway Transport, which aimed to develop competition in the industry and attract private investment, while the Asian Development Bank has been active in investing in the country's rail network. FDI currently represents 1.4% of funding in Kazakhstan's transport sector.⁸¹

⁸⁰ Kazakhstan – Transport and Logistics, International Trade Administration, Accessed April 2023

⁸¹ Transport Industry of Kazakhstan, Halyk Finance, May 2019

Pricing date	Maturity date	Issuer	Amount (\$m)	Sector	Issuer type
12/04/2013	22/04/2018	Eastcomtrans	100	Transportation-Rail	Corporate
05/06/2014	20/06/2019	National Co Kazakhstan Temir Zholy JSC	112	Transportation-Rail	Public Sector
05/06/2014	20/06/2022	National Co Kazakhstan Temir Zholy JSC	112	Transportation-Rail	Public Sector
04/06/2014	20/06/2022	National Co Kazakhstan Temir Zholy JSC	95	Transportation-Rail	Public Sector
08/06/2017	06/07/2022	Kazakhstan Temir Zholy Finance BV	265	Transportation-Rail	Public Sector
13/11/2017	17/11/2027	Kazakhstan Temir Zholy Finance BV	780	Transportation-Rail	Public Sector
27/11/2018	05/12/2023	National Co Kazakhstan Temir Zholy JSC	170	Transportation-Rail	Public Sector
23/05/2019	05/12/2023	National Co Kazakhstan Temir Zholy JSC	80	Transportation-Rail	Public Sector

Table 24: Transport sector unlabelled bonds

Source: Environmental Finance Data

Indeed, Kazakhstan's government plans to make the country a logistics hub that links Asia and Europe, including through the country's participation in the Trans-Caspian International Transport Route – an alternative transit route linking rail freight from China with the European market. The government's investments include more than \$1.6bn in railway modernization projects between 2022 and 2025 and \$4bn on depot and railcar renovation as well as the overhaul of rails and locomotives. Between 2022 and 2026, the European Bank for Reconstruction and Development (EBRD) plans to invest €100m in stateowned rail operator Kazakhstan Railways to upgrade rail freight routes.

Flagship transport infrastructure projects in Kazakhstan include the Nurly Zhol State Infrastructure Development Program 2015-2019, which seeks to integrate Kazakhstan's regions via transport infrastructure to create a single economic market that fosters long-term growth. Others include the \$743m Big Almaty Ring Road project at the intersection of international road corridors running along the Khorgos-Almaty-Bishkek-Taraz-Shymkent-Tashkent (known as the Silk Road) and Almaty-Karaganda-Astana-Petropavlovsk routes.

Meanwhile, the International Finance Corporation and EBRD are providing a combined total of \$372.2m financing package to Almaty International Airport to build a new terminal to strengthen Kazakhstan's connectivity and economic competitiveness, a prospect that is boosted by an open skies agreement inked with the US in 2022 that could increase aviation traffic in Kazakhstan. In 2016 an agreement was signed in Baku to establish the Trans-Caspian International Transport Consortium (TITC) between the national railway departments of Azerbaijan, Georgia and Kazakhstan, while \$600m is being directed towards investment to boost capacity in Caspian Sea ports in the west of the country.

Leading Companies

Kazakhstan Railways (KTZ): is the national railway company of Kazakhstan and is responsible for developing, operating, and maintaining the country's railway transportation network, which comprises about 18,000km of tracks. KTZ also manages the rail freight wagons, locomotives, and passenger carriages.

JSC NC KTZ: is a transport and logistics holding company that provides rail and sea transport, transport and logistics services, and develops road, sea and airport infrastructure.

Port of Aktau: is located on the east coast of the Caspian Sea at the intersection of several international transport corridors and is active in the transportation of dry cargo, crude oil and oil products.

Air Astana: is the principal airline and the national carrier of the Republic of Kazakhstan based in Almaty, Kazakhstan. The company operates scheduled domestic and international services on 56 routes from its main hub, Almaty International Airport, and from its two secondary hubs, Astana International Airport and Atyrau Airport.



Almaty Metro: is a rapid transit system in Almaty, Kazakhstan, and began operations in December 2011. It consists of one line and nine stations and is the youngest such facility among CIS countries.

DSV Panalpina: is a Swiss company that is one of the world's leading providers of end-to-end supply chain solutions with significant operations in Kazakhstan.

Atasu Group: is one of the largest logistics companies in Kazakhstan, which offers a full range of services in the field of cargo transportation spanning rail, road, air and multimodal transportation.

TRANSCO: is a transport and logistics service provider rich in tradition, with branches in Germany, Switzerland, Italy, Great Britain, Poland, the Czech Republic, Ukraine and Slovakia and a significant footprint in Kazakhstan.

Unlabelled (vanilla) bond issuance

There is some precedence in unlabelled bond issuance in Kazakhstan's transport sector, with 11 bonds worth \$3.5bn issued since 2007 – all from companies active in the rail industry (see table 24). KTZ are responsible for most of the bonds issued (10/11), with one from Eastcomtrans.

Outlook for sustainable bond issuance

The government's focus on making Kazakhstan a logistics hub creates a strong project pipeline in the transport sector which could be funded by sustainable bond issuance. The involvements of major investors such as IFC, EBRD and ADB who have strong track records investing in and issuing sustainable bonds creates some precedence.

Nevertheless, the domination of state-owned enterprises in the transport industry, especially rail and waterways, and a lack of PPPs curtails the potential for real economy transport sector sustainable bond issuance in Kazakhstan.

There is some PPP precedence with the Almaty ringroad, a 2016 \$743m infrastructure project tendered out to a Turkish-South Korean consortium – the first PPP of its kind in Central Asia.

Country focus: Pakistan

Country: Kazakhstan

Population: 236 million (World Bank 2022)

GDP: \$381bn (World Bank 2022)

Fixed income debt market total issuance 2007-2022: \$12.75bn (Dealogic)

Real economy bond issuance 2007-2022: \$0.5bn (Dealogic)

Sustainable bond issuance 2007-Q1 2023: \$0.5bn (Environmental Finance Data)

Real economy sustainable bond issuance 2007-Q1 2023: \$0.5bn (Environmental Finance Data)

Figure 15: Pakistan – bond issuance 2007-Q1 2023



Source: Dealogic, Environmental Finance Data


Macro-economic overview

Between 2001 and 2018, the expansion of economic opportunities outside of agriculture, as well as increased inflows of remittances due to migration, were among the factors enabling some 47 million Pakistanis to escape poverty. Yet despite significant progress in improving living standards, human capital development remains poor; stunted growth is common in children, affecting around 38% of all minors, while 75% of the population experiences impoverishment in terms of educational opportunities.⁸²

Pakistan's frequent macroeconomic crises and low growth are partly attributable to a lack of investment in measures to enhance productivity and exports, with per capita GDP growth averaging just 2.2% annually between 2000-2022.⁸³

Pakistan is currently experiencing severe economic conditions, with the country deeply indebted and at high risk of default. Pakistan's difficulty in attracting foreign financing required under the \$6.5 billion Extended Fund Facility extended to the country in 2019 by the International Monetary Fund means that the remaining tranches of the facility are yet to be disbursed.

Instead, public debt has risen amid substantial government subsidies, losses among state-owned enterprises, and a reluctance to implement reforms to expand the tax revenue base relative to GDP. Under the IMF facility, authorities have begun to remove subsidies and are pursuing a policy of monetary tightening alongside other consolidation measures.

Pakistan faces a serious balance of payments crisis, and its reserves of foreign currency are depleted; at present levels these are enough to pay for just a few weeks of imports. Inflows of remittances continue to fall while foreign aid inflows to Pakistan have greatly diminished. Amid a global economic slowdown and the high cost of commodities globally, inflation is especially high; in March 2023 the consumer price index exceeded 35 (its highest level since 1965). The Pakistani rupee continues to depreciate sharply against the dollar.

Pakistan's economic outlook is worsened by climate events. In June 2022, heavy monsoon rainfall subjected the country to unprecedented floods that submerged around 15% of the area of the country, affecting 33 million people and damaging or destroying 2 million homes.⁸⁴ Meanwhile, the incident has cause estimated damages to private and public infrastructure of \$30bn.⁸⁵

While the impact of this event is concentrated in the agricultural sector, the resultant drop in agricultural output has negatively affected the industrial and service sector activity, particularly due to the reliance of the textile sector on locally produced cotton. It is estimated that these effects will push up the national poverty rate by between 3.7-4%, equivalent to an additional 8.4-9.1 million people.⁸⁶

Among Pakistan's creditors, much of its debt is owed to multilateral institutions and Paris Club countries alongside private creditors. Some one-third of external debt is owed to China; the China-Pakistan Economic Corridor (at an estimated cost of US\$35bn by 2030) is among the main joint infrastructure projects funded by China and seeks to integrate both powers through linkages encompassing road, rail, and port.

The withdrawal of US forces from neighbouring Afghanistan has lessened US involvement in maintaining security in the region, at the same time as Pakistan continues to battle the rise of anti-Pakistan terrorist group Tehreek-e-Taliban Pakistan (TTP), which has been emboldened by the rise of the Taliban in Afghanistan.

Regulations or government policy regarding sustainable debt or sustainability targets

In 2012, Pakistan passed its National Climate Policy identifying the country's vulnerabilities to climate change when it came to flooding, water resources, agriculture, forestry, coastal areas, and biodiversity. The policy, intended to be pro-poor and gender-sensitive, is designed to attract international finance to foster sustainable economic growth via measures focussed on climate change and adaptation. It also provides incentives for private investment and includes requirements for government ministries, departments and agencies to devise their own plans to implement the policy in their respective fields.

⁸² Pakistan Overview, The World Bank, April 2023

⁸³ Pakistan Overview, The World Bank, Accessed April 2023

⁸⁴ Pakistan: Flood Damages and Economic Losses Over USD 30 billion and Reconstruction Needs Over USD 16 billion - New Assessment, The World Bank, October 2022

⁸⁵ Pakistan: Flood Damages and Economic Losses Over USD 30 billion and Reconstruction Needs Over USD 16 billion - New Assessment, The World Bank, October 2022

⁸⁶ Pakistan Floods 2022- Post Disaster Needs Assessment, Ministry of Planning Development & Special Initiatives, United Nations Development Programme, October 2022

The Government of Pakistan ratified the Paris Agreement in 2016 requiring it to adopt measures to mitigate climate change. The National Climate Policy was updated in 2021 to include new Nationally Determined Contributions towards reducing greenhouse gas emissions.

In addition, the updated document outlined measures towards implementation of the Clean Green Pakistan Campaign, the Protected Areas and National Parks Initiative, and the Eco-system Restoration Initiative (ESRI). The policy includes the goal of expanding protected areas to at least 15% of the area of Pakistan by 2023 and outlines steps to conserve water resources and energy.⁸⁷

A key aspect of Pakistan's sustainability policy centres around the UN Sustainable Development Goals (SDGs). In 2016 the country affirmed its commitment to the UN's 2030 Agenda for Sustainable Development by adopting the SDGs as the basis for its own national development plan via a unanimous resolution by the country's national assembly. This was followed in 2018 by a National SDG Framework, which was significant for mainstreaming the goals in national policies and strategies and for providing a basis for their implementation.

The framework is supplemented by SDG support units on the federal and provincial level, including through the involvement of such institutions as the Ministry of Planning Development and Special Initiatives and Provincial Planning Development Departments. This is supported by constitutional amendments to devolve powers and several public functions including the provision of social services from the federal to provincial governments.

A key challenge for the government is to deliver strong monitoring and reporting on the SDGs and to ensure that public financial allocations are aligned with the goals. Nevertheless, in 2020 the government reported that with the support of the UN Development Program it had achieved SDG 13, "Climate Action", a decade ahead of schedule.

This was achieved in part due to the successful implementation of Pakistan's "Billion Tree Tsunami" programme. Launched in 2014, the initiative sought to reforest Pakistan's Khyber Pakhtunkhwa province and has since been extended nation-wide with a goal of 10 million trees planted.

In 2021, Pakistan's Securities and Exchange Commission, the national regulator for securities, issued detailed guidance on issuing green bonds and green sukuk, including permitted use of proceeds derived from the International Capital Market Association's (ICMA) Green Bond Principles. In its guidance, the organisation stated that it expects such issuance to be mapped to the SDGs and provided detailed templates of appropriate documentation for green issuance.

Sustainable bond issuance

Although Pakistan has touted several potential rounds of sustainable bond issuance, only one recorded sustainable bond has been issued in Pakistan so far. The inaugural issuance was a \$500 million green bond in May 2021 from Water Power and Development Authority, a stateowned utilities company specialising in hydroelectric power. Proceeds from the sale were directed towards the development or refinancing of projects in renewable energy. The issuance, which contributed to SDGs 7 and 13 and received robust demand, was managed by international lead managers including JP Morgan, Deutsche Bank, and Standard Chartered, with local Habib Bank listed as co-manager.

Pakistan's domestic bond market is relatively underdeveloped and continues to be dominated by sovereign issuance of treasury bills as well as medium and long-term bonds. Amid Pakistan's present economic troubles, this source of issuance has declined alongside the issuance of corporate and financial institution bonds.

This context presents a weak basis for the issuance of further sustainable bonds that is compounded by multiple sovereign downgrades. Some other factors that hinder the widespread rollout of sustainable financial instruments in Pakistan include high transaction costs involved to verify issuance through a second party opinion and the sourcing of reliable data; the perceived risk of investing in an emerging market; and the longer timeframes required of green investments. Where reporting on use of proceeds is required, the costs of this may also be prohibitive.

Power sector

Pakistan's power sector is dominated by state-owned power distribution companies or DISCOs, many of which are highly indebted. Despite progress to increase levels of power generation over the past decade Pakistan continues to suffer from the effects of energy insecurity brought about by high fuel prices, chronic shortages

⁸⁷ National Climate Change Policy, Government of Pakistan Ministry of Climate Change, October 2021

of natural gas, a reliance on imported energy and the country's ageing and inadequate transmission and distribution infrastructure.

Inefficiency in electricity generation and distribution are major issues for the sector and lead to huge losses of electricity, with government subsidies arguably removing incentives to correct this. Although some generation is undertaken by privately-owned independent power producers or IPPs, proposals to privatise or transfer ownership of power distribution companies are yet to be enacted and remain subject to debate. There are also frequent delays in paying government subsidies to these IPPs, meaning they are often unable to afford the fuel required for electricity generation.

These factors have contributed towards frequent power cuts in Pakistan, with the lack of reliable access to electricity contributing to sluggish economic growth and poor social outcomes in education, healthcare, and gender equality. In addition, the high prices paid for imported fuel have widened the country's current account deficit and thus worsened Pakistan's macroeconomic woes.

Pakistan's total installed power generation capacity is made up of 63% thermal power from fossil fuels; 25% from hydropower; 5.4% from renewable energy such as wind, solar and biomass; and 6.5% from nuclear power.⁸⁸

Against a backdrop of energy insecurity and dependence on imports, Pakistan's government has implemented measures to increase generation from renewable energy including hydropower to 60% by 2030. Pakistan has large potential for wind power, especially along the coastal belt to the south of the country's Sindh and Baluchistan provinces. Here, the government has developed a corridor for wind power generation.

Beginning in 2013, solar power entered Pakistan's energy mix following government measures to support growth in photovoltaics, including the introduction of net metering that enables small-scale producers and households to benefit financially from their contributions to the energy grid.

The transition to cleaner forms of energy includes 26 private wind farms already in existence, with a further 10 wind projects having secured financing or in the construction phase. Meanwhile, amid rising energy costs and the unreliability of the power supply, the number of private commercial organisations, industries and households implementing small-scale renewable generation has surged. This includes solutions in captive

88 Pakistan - Renewable Energy, International Trade Administration, Accessed April 2023

solar, as well as the development of small-scale hydro power, especially in remote regions in the north of the country where there exists significant potential for these projects.

Leading Companies:

Water and Power Development Authority (WAPDA): is a government-owned public authority responsible for maintaining power and water in Pakistan and for the development of hydro power and water sector projects in the country. The authority plans and executes projects and schemes for the generation, transmission and distribution of power; water supply and drainage; flood management; irrigation, inland navigation; and prevention of water logging and reclamation of waterlogged and saline lands. WAPDA is headquartered in Lahore, Pakistan.

K-Electric: is a vertically integrated electric utility and the only privately-owned power distribution company in Pakistan. The company generates, transmits, and distributes electricity to serve customers in Karachi and the surrounding area. The company produces power using coal, gas and fuel sources and has power purchase agreements in place with multiple independent power producers.

Islamabad Electric Supply Company (IESCO): is a state-owned power distribution company whose core activities include the direct supply, distribution and sale of power to some 3.2 million consumers across six city districts in the capital.

Faisalabad Electric Supply Company (FESCO): is a state-owned power distribution company that generates and supplies electricity to about 5 million households and businesses across a territory with a population of over 26 million.

Gujranwala Electric Power Company (GEPCO): is a state-owned power distribution company which supplies electricity to the Gujranwala region in Punjab, Pakistan. The jurisdiction of the company includes the Sialkot, Narowal, Gujranwala, Gujrat, Hafizabad and Mandi Bahauddin districts.

Nishat Power: is an independent power producer engaged in building, owning, operating, and maintaining fuel-fired power and solar plants in Pakistan that collectively account for a generation capacity of 220 megawatts across the Jamber Kalan, Tehsil Pattoki, District Kasur, Punjab, and Multan regions of Pakistan. **Saif Power**: is a privately-owned independent power producer that owns, operates and maintains power plants with a combined capacity of approximately 225 megawatts in the district of Sahiwal, Punjab, Pakistan. The company is a project of Saif Group, which is a diversified industrial and services conglomerate with portfolios in textiles, power generation, oil and gas exploration, information technology, software development, real estate, fibre optic network, environmental management and healthcare services.

Kot Addu: is an independent power producer that owns, operates, and maintains a portfolio of multi-fuel gas-turbine power plants able to generate power from three different fuels, namely gas, light sulphur furnace oil and high-speed diesel.

Engro Energy: is an independent power producer that is a fully owned subsidiary of Engro Corporation, Pakistan's largest conglomerate. The company's aim is to develop projects exploring cleaner, more efficient and economically viable sources of power generation including wind, hydro and solar energy. The company's plant in Qadirpur is widely recognized as being Pakistan's first 'green' power plant and the only facility of its kind to reduce carbon emissions via the utilization of permeate gas. Engro Energy has entered a strategic long-term partnership with the government of Sindh Province to establish the Sindh Engro Coal Mining Company Limited as a joint venture launched to mine coal.

Power sector - unlabelled (vanilla) bond issuance

There have not been any unlabelled issuance among Pakistan's power sector, the \$500 million green bond from government-owned utility provider the Water and Power Development Authority in May 2021 is the only bond.

Outlook for real economy sustainable bond issuance

Although Pakistan's power sector continues to be dominated by state-owned enterprises in the form of power distribution companies, the role that privatelyowned independent power producers play in the sector creates some potential for real economy issuance. However, there remain significant issues surrounding unpaid government subsidies to independent power producers which prevent reliable electricity generation; these must first be resolved before access to capital markets can realistically be considered.

In the face of external pressure to reform the economy, the ownership structure of the energy sector could change to allow transfer of some state-owned entities into private ownership, which would further increasing the likelihood or real economy issuance. Yet this remains unlikely due to high levels of debt among state-owned enterprises in the sector, which drastically reduces their appeal as targets of private investment.

Still, if Pakistan is to meet targets of drastically increasing generation of renewable energy by 2030 it will require major funding that must be funded by debt, while moves by Pakistan's Securities and Exchange Commission to develop a local market for sustainable debt could create further opportunities for sustainable bond issuance among power sector companies in Pakistan.

Agribusiness sector

Pakistan is among the world's top producers of wheat, rice, cotton, and sugarcane, as well as mangoes, dates, and oranges. Agriculture accounts for some 18.5% of Pakistan's GDP – inclusive of 11% from livestock - and is by far the largest employer, with 39% of the population engaged in the sector.⁸⁹ Of Pakistan's total land area of 79.6 million hectares, 22.1 million are cultivated, with large swathes of the remaining territory comprised of culturable waste, forests, and rangelands.⁹⁰ Pakistan also boasts the world's largest contiguous irrigation system, which serves almost 80% of the country's cultivated land area.⁹¹

Agriculture makes a large contribution to Pakistan's economy and society, including the country's balance of payments via exports and foreign exchange earnings. Yet despite the centrality of agriculture to the Pakistani economy, large sections of the population including children are afflicted by food insecurity and undernourishment. Urbanisation and population growth are placing further strain on the agricultural sector and the water resources needed to sustain it, 90% of which are used for agricultural purposes.

The total size of the market for agricultural machinery in Pakistan is around \$1bn and includes tractors, harvesters, irrigation equipment, and other smallscale agricultural machinery. Further, these inputs are among the largest contributors to the overall growth and sustainability of the local agriculture sector; the result has been that the government has extended reduced tariffs on this equipment to promote further mechanisation of farming practices. Yet, in other areas poorly targeted government subsidies have discouraged a move towards more efficient and higher value agriculture.

89, 90, 91 Pakistan at a Glance, Food and Agriculture Organization of the United Nations, Accessed April 2023

Leading Companies:

Engro Corporation: is a company engaged in manufacturing and marketing fertilizers, whose portfolio also includes foods, chemical storage and handling, trading, energy and petrochemicals.

Nestle Pakistan: is a food and beverage company, with main activities in the manufacturing, processing, and sale of food products including imported goods. The company's key products are dairy, confectionery, coffee, beverages, infant nutrition, and drinking water.

Fauji Fertilizer Company: is a manufacturing company whose products include Urea fertilisers, SOP fertilisers, Boron fertilisers, Zinc fertilisers, Muriate of Potash (MOP) fertilisers and Di-Ammonium Phosphate (DAP) fertilisers.

Unilever Pakistan: is a Pakistan-based company engaged in the manufacturing and sale of consumer and commercial food products, including brand names like Rafhan, Knorr, Hellmann's, Energile, Glaxose-D, and Food Solutions. It also includes brands such as Comfort, Dove, Lifebuoy, Pepsodent, Lux, Domex, Ponds.

Rafhan Maize Products: is a company engaged in the use of maize as a basic raw material to manufacture and sell industrial products. The firm's major products are industrial starches, liquid glucose, dextrose, dextrin, and gluten meals and the company supplies its products to textiles, pharmaceuticals, paper, food, baking, confectionery, and other allied industries. The firm sells its products in Pakistan and exports them to other countries, of which key revenue is derived within Pakistan.

Fatima Fertilizer: is engaged in manufacturing, producing, buying, selling, importing and exporting fertilizers and chemicals, such as nitrogen, phosphate and potash fertilizers. Its range of products includes Sarsabz Calcium Ammonium Nitrate (CAN), Sarsabz Nitro Phosphate (NP), Nitrogen Phosphorous Potassium (NPK) and Sarsabz Urea.

FrieslandCampina Engro Pakistan: is engaged in manufacturing, processing and selling dairy products, beverages and frozen desserts. The company also owns and operates a dairy farm. The company operates through two segments: dairy and beverages, and ice cream and frozen desserts.

Ismail Industries Limited: is engaged in the manufacture and trade of sugar confectionery items, biscuits, potato chips, and cast polypropylene film under the brands of CandyLand, Bisconni, SnackCity, and Astro Films.

National Foods: is a multi-category food company that is principally engaged in the manufacturing and sale of convenience food products and earns most of its revenue from Pakistan, while also being active in Canada and the Middle East. The company's products include desserts, jams, pickles, frozen meals, ketchup, recipe masala, rice, basic spices, and snacks.

JDW Sugar Mills: is a Pakistan-based holding company active in the production and sale of crystalline sugar, including its by-products such as molasses and bagasse. The company is also engaged in the generation of electricity and managing corporate farms.

Unity Foods: is a Pakistan-based company whose core activities are edible oil extraction, refining, sales, and related businesses. The company's products include edible oil; staples like flour, rice, lentils, and pulses; industrial fats; and various feed ingredients for poultry and the livestock sector.

Tandlianwala Sugar Mills: is engaged in the production and sale of white crystalline Sugar, ethanol, and carbon dioxide.

Agribusiness sector - unlabelled (vanilla) bond issuance

No precedence for bond issuance in agribusiness sector

Outlook for real economy sustainable bond issuance

There are no recent issuances among real economy companies in Pakistan's agribusiness sector, meaning that there is no precedence to serve as the basis for sustainable issuance. Yet the prominence of agriculture in Pakistan's economy means that the sector must form part of any serious effort to decarbonise the economy and promote sustainability, requiring large amounts of capital to fund transition.

The success of Pakistani agriculture in attracting both multinational companies to operate in the country –as well as establishing a cluster of successful local companies with a considerable international footprint-strengthens the prospects for sustainable issuance. These companies may draw on additional resources including in some cases parent companies in advanced markets when issuing sustainable bonds.



Transport sector

Pakistan's transport sector makes up 13.7% of the country's GDP and accounts for 5% of employment, with road transport overwhelmingly dominant; currently this accounts for some 92% of passenger volumes and 96% of freight volumes.^{92 93}

Pakistan has its own rail network, Pakistan Railways, that is owned by the state and operated by the Ministry of Railways. In addition, Pakistan's second most populous city, Lahore, has its own metro system, with a further two rapid transit systems proposed in the provinces of Baluchistan and Khyber Pakhtunkhwa.

The maritime sector is generally underdeveloped, although Pakistan's most populous city, Karachi, has its own port. Meanwhile, in recent years there has been some interest in the potential of the river Indus as a future commercial waterway, although there have not yet been any concrete proposals in this direction.

Together with the Asian Development Bank, Pakistan's National Highway Authority has created a framework to attract private companies to participate in projects needed to improve the country's transportation infrastructure.

Leading Companies

Pakistan International Airlines Corp: provides commercial air transportation services. It includes passenger, cargo postal carriage, engineering and allied services.

A.P. Moller-Maersk A/S: is a Denmark-listed global conglomerate involved in global trade, shipping, and energy, and has been the largest container shipping company globally for more than 20 years. The company has a sizeable footprint in Pakistan.

Kintetsu World Express Inc: is an international air freight forwarding services, international sea freight forwarding services, land transportation, third-party logistics, cross docking, and freight forwarding services company with major operations in Pakistan. It also provides customs brokerage, logistics, handling services, packing, and insurance agency services.

Pakistan Railways: is the national, state-owned railway company of Pakistan and caters to freight as well as passenger traffic. The company aims to contribute not only to economic growth but also to promoting national integration.

Transport sector – unlabelled (vanilla) bond issuance

No precedence for bond issuance in transport sector

Outlook for real economy sustainable bond issuance

The issuance of sustainable bonds in the real economy Pakistani transport is highly unlikely under present conditions, not least because there is no precedence for recent bonds in the sector. Nevertheless, there is potential for sustainable issuance in Pakistan's railway industry, which remains relatively underdeveloped. Moreover, there is a national target to increase the proportion of freight carried by rail to 20% from the current level of 4%, meaning that in future there is likely to be a suitable pipeline of sustainable bond eligible projects. Yet, Pakistan's railway sector remains unprofitable and cannot be sustained in the absence of government support, making it an unattractive target for the kind of private investment that could result in a real economy sustainable bond.

⁹² Greenhouse Gas Mitigation Options for Pakistan: Transport Sector, International Institute for Sustainable Development, October 2016
93 Sector Assessment: Transport, Asian Development Bank, September 2015

Country focus: Uzbekistan

Country: Uzbekistan

Population: 35 million (World Bank 2021)

GDP: \$69.2bn (World Bank 2021)

Fixed income debt market total issuance 2007-2022: \$4.28bn (Dealogic)

Real economy bond issuance 2007-2022: \$1.3bn (Dealogic)

Sustainable bond issuance 2007-Q1 2023: \$0.87bn (*Environmental Finance Data*)

Real economy sustainable bond issuance 2007-Q1 2023: \$0bn (Environmental Finance Data)

Figure 16: Uzbekistan – bond issuance 2007-Q1 2023



Source: Dealogic, Environmental Finance Data



Macro-economic overview

Strategically positioned between China and Europe, Uzbekistan is the most populous country in Central Asia at just under 35 million according to the World Bank. State-owned enterprises figure prominently in the country's economy, which is highly dependent on the export of commodities such as gold, cotton and fossil fuels. Uzbekistan's main trading partners include China, Russia and Switzerland.

Since 2017, the government has embarked upon an ambitious set of market reforms intended to liberalise the economy and improve the overall business environment as the country transitions from a highly protectionist economic model – focused on import substitution and export controls on commodities such as food – towards a more open one. The reforms include steps to assist Uzbekistan in its aspiration to join the World Trade Organisation; in 2018 the country obtained its first set of sovereign risk ratings as part of moves to welcome inward investment.

Other measures include the establishment of the Foreign Investment Agency of Uzbekistan – a one-stop shop for foreign investment – alongside reducing the tax burden on foreign businesses. In addition, the government has dropped the previous requirement for foreign investors to exchange hard currency at artificially low rates.

As a result, between 2011 and 2019 Uzbekistan shot up the World Bank's ease of doing business index from 166th to 69th place, and has secured increasing amounts of Foreign Direct Investment (FDI).⁹⁴ The bulk of FDI continues to come from Russia at 55%, followed by China at 15%; yet there is growing diversity among FDI inflows, which now find their way towards a broader range of industries than oil and gas, which were traditionally the target of foreign investment.⁹⁵

Despite efforts towards liberalisation, state-owned enterprises continue to play a central role in Uzbekistan's economy. These predominate in sectors such as energy, telecommunications, airlines, and mining, while the government also maintains a tight grip on capital inflows into certain industries including cotton and textiles.

At the same time as Uzbekistan suffers disproportionately from the effects of climate change – temperatures there are rising at levels that are above-average – its energy mix continues to be carbon intensive, with the fossil fuel industry benefitting from government subsidies. Although Uzbekistan has diversified its economy somewhat in recent years – year-on-year non-gold exports from the country increased by 21% in 2022 – its integration into higher value-add supply chains is hampered by a lack of free trade agreements with other countries.

Currently Uzbekistan has just nine such agreements in place, fewer than almost any other country in Central Asia, and does not even form part of the Eurasian Economic Union. As a result, its industry is often limited to the manufacture of intermediate goods. The country's weak governance, ageing infrastructure, and lack of regulatory harmonisation with other markets further impede cross-border trade.

Uzbekistan has not been immune to recent headwinds; its economy is affected by high inflation driven by high global food and commodity prices; by the close of 2022 this had exceeded 12%. Yet despite fears of potential negative spillover effects from Russia's invasion of Ukraine, Uzbekistan's economy defied expectations in 2022 to grow by a healthy 5.7%.

Indeed, despite a recession in Russia, year-on-year exports to the country grew by 52% as Uzbekistan stepped into the vacuum left by Western countries' exit from Russia. Reshoring from Russia and increasing tourist numbers from Central Asia are among the factors contributing to increases in the dollar value of service exports by 53%.

Taken together, these developments have helped Uzbekistan. In 2022 it slashed its current account deficit from 7% to just 0.6%, whilst also boosting foreign currency reserves. In the same period the rate of poverty in the country fell year-on-year from 17% to 14%, while the rate of unemployment fell year-on-year from 9.6% to 8.9%.

Regulations or government policy regarding sustainable debt or sustainability targets

Uzbekistan is party to the United Nations Framework on Climate Change and became a signatory to the Paris Agreement in 2018, both of which commit the country to reducing its greenhouse gas (GHG) emissions and to implementing measures towards climate adaptation. At the 26th Conference of the Parties (COP) in 2021, the country proposed fresh targets to reduce carbon emissions intensity proportional to GDP by 35% by 2030 compared to base year 2010.

⁹⁴ Ease of doing business rank (1=most business-friendly regulations) - Uzbekistan, World Bank, September 2021

⁹⁵ Uzbekistan's sustainable infrastructure investments, OECD iLibrary, Accessed April 2023

Uzbekistan has advanced these efforts by developing a comprehensive greenhouse gas inventory covering 1990–2017, with more recent years in preparation. The five greenhouse gas emission areas included are energy, industry, agriculture, forestry and land use, and waste, while a reporting and verification system is being developed to cover the greenhouse gas emissions inventory and mitigation measures.

As well as pursuing these carbon emissions reduction goals, Uzbekistan's Climate Change Strategy 2021-2023 and Strategy on Transition to a Green Economy 2019-2030 both outline targets for increasing renewables as a share of total electricity generated by 25%.

On the level of national policy, Uzbekistan's Ministry of Finance seeks to design a methodology for green budgeting through such measures as linking spending to the UN Sustainable Development Goals; implementing green taxes and subsidies; and embedding sustainability into procurement. In parallel, the Ministry of Investments and Foreign Trade will develop measures for attracting green financing through its Green Investment Council.

With support from the Green Climate Fund (GCF), Uzbekistan has started to prepare its national plan on climate change adaptation, focusing on water management, agriculture, public health, urban environment, and disaster risk reduction. Meanwhile, the Ministry of Economic Development and Poverty Reduction has developed a strategic framework for green growth in partnership with such organisations as the United Nations Development Programme and the World Bank under its Country Partnership Framework 2022-2026.

Jointly with the Netherlands Development Bank, HamkorBank was one of the first private banks in Uzbekistan to offer green loans to small and mediumsized enterprises through onward lending of funds provided to it by the European Bank for Reconstruction and Development (EBRD). The finance was used by recipients to procure green technology or equipment that reduces emissions and energy consumption and provides energy-efficient heating and cooling. This was followed by a \$6m loan to Ipak Yuli Bank from the EBRD for onward lending to sub-borrowers who met criteria set out in the EBRD's Green Economy Transition framework.

In November 2022, Zarafshan wind farm received green loans totaling \$277m to build the first wind power plant in Uzbekistan. Once operational in 2025, it will be the largest wind plant in central Asia and help provide almost 500,000 homes with sustainable and reliable energy. The International Finance Corporation, Natixis, the Asian Development Bank, EBRD, First Abu Dhabi Bank, the Japan International Cooperation Agency and the Dutch Entrepreneurial Development Bank all participated in the transactions.

Elsewhere, the Regional Environmental Centre of Central Asia (CAREC) has helped design green and climate criteria and conduct evaluations on micro-loans for climate adaptation under the Climate Adaptation and Mitigation Program For the Aral Sea Basin (CAMP4ASB) in selected provinces of Uzbekistan.

Sustainable bond issuance

In August 2021, Uzbekistan issued its first sustainable bond with an \$870m sovereign Sustainable Development Goal Bond spread across two tranches denominated in Uzbek Som and US dollars. The Uzbek Som tranche carried a tenor of three years and paid a coupon rate of 14%, while the tranche denominated in US dollar had a longer tenor of ten years and paid a lower interest rate of 3.9%. The issuance was designed to contribute towards multiple Sustainable Development Goals spanning environmental and social factors, including Climate Action (SDG 13) and Quality Education (SDG 4).

The Uzbekistan government has prepared the ground for future issuances of Shariah-compliant Green Sukuk to fund energy efficiency and other innovations, most recently by publishing a concept note in June 2022 to development a legal and regulatory framework for issuance of these instruments in both the domestic and international markets.

To date, there has not been a sustainable bond issuance from the corporate sector. Yet, with estimates from the Ministry of Finance putting the annual cost of Uzbekistan's transition to a low carbon economy at 4.8% of GDP or \$4bn, there remains plenty of scope for further sustainable bond issuance.

Power sector

Despite Uzbekistan's considerable potential for solar and nuclear power, the country remains highly reliant on fossil fuels for electricity generation and does not have a single nuclear power plant or industrial scale solar plant. The share of electricity generation accounted for by solar, wind and biomass is currently so low that statistical agencies do not even track it.

With the country's population due to increase by some 3 million by 2030, Uzbekistan will need to find additional

sources of power, which is set to grow by 6-7% each year until the end of the decade.⁹⁶ Yet Uzbekistan's ageing and unreliable energy infrastructure is in urgent need of repair at the same time as energy demand outstrips generation capacity.

The Ministry of Energy of the Government of Uzbekistan is tasked with responsibilities such as regulating the energy sector, attracting private capital for exploratory activities, ensuring competition and diversity of supply, and developing PPPs. As part of this process, the government has adopted the Law on the Use of Renewable Energy Sources and the Law on Public-Private Partnerships and introduced legislation regulating the connection of businesses that generate energy to the power grid.

In addition, it has introduced a range of incentives such as exemptions from customs duties, property and land taxes, liquidity support mechanisms, and guarantees to connect equipment to the national grid.

To improve Uzbekistan's energy position, the government has committed to generating 25% of electricity from renewable sources by 2030, including through the development of hydropower; currently, only 27% of Uzbekistan's hydropower potential is being utilized.⁹⁷ The government has also announced 62 hydropower projects to be completed by 2030, which will make up to 13% of the total energy mix.⁹⁸ Construction of Uzbekistan's first nuclear power plant is underway.

Leading Companies:

Thermal Power Plants: is a state-owned company in Uzbekistan, whose principal activity is generation of electricity and heat at gas-fired power units. The company has around 11.5GW of installed capacity, or 71% of total installed capacity in the country.

National Electric Networks of Uzbekistan: is a state-owned enterprise engaged in the operation and development of the main electric networks of the Republic of Uzbekistan, the supply of electricity through the main electric networks and the implementation of interstate transit, and cooperation with electric power systems of neighbouring states.

Regional Electric Power Networks: is a distribution service operator and electricity sales company in Uzbekistan, which purchases electricity from the transmission network, JSC National Electric Grid of Uzbekistan, to distribute and sell to end customers.

95, 96, 97 Uzbekistan - Renewable Energy, International Trade Administration, Accessed April 2023

ACWA Power: is a leading Saudi developer, investor, and operator of power generation, water desalination and green hydrogen plants and has five ongoing projects in Uzbekistan, including four wind projects and a combined gas cycle turbine facility. Uzbekistan is the second largest market in terms of value for the company after its home market of Saudi Arabia.

Masdar Clean Energy: is one of the fastest-growing renewable energy companies in the world based in Abu Dhabi and is rapidly expanding its footprint in Uzbekistan through the rollout of solar power.

Unlabelled (vanilla) bond issuance

No precedence for bond issuance in the power sector

Outlook for real economy sustainable bond issuance

Despite the predominance of state-owned enterprises in Uzbekistan's power sector, PPPs are frequently utilised in Uzbekistan to reduce risk, often through the involvement of multilateral development banks. This feature of Uzbekistan's economy holds out the prospect of a similar model being used in the country involving a real economy issuer, including when it comes to labelled bonds.

This is especially so in the case of the subsidiaries of many international companies operating in Uzbekistan with involvement in the power sector, all of which serve as fertile ground for a labelled bond.

The limited precedence for bond issuance in the power sector is offset by the presence of large multinational companies with experience in the fixed income markets. There is strong need for investment in renewable energy and sustainable power projects which could be funded with sustainable bond issuance.

Agribusiness sector

Agriculture accounts for around 17.5% of Uzbekistan's GDP and employs around 15 million people.⁹⁹ Around half of the population lives in rural areas, around two-thirds of which make their living from agriculture. Cotton and grain are among the country's main crops, although recent measures to liberalise the economy – including the elimination of quotas and price controls – has facilitated a shift towards higher value cultivation of fruit and vegetables. A large share of the agricultural workforce occupies small holder farms.

98 Uzbekistan, International Fund for Agricultural Development, Accessed April 2023

Recent economic reforms have focused on the potential for the agricultural sector to become a driver of exports, with the government hoping to double farmers' income and ensure minimum annual growth in agriculture of 5% between 2022-2026 through intensive development programs, digitalization, and the adoption of new technologies.

As part of this drive, the government plans to set up Agricultural Knowledge and Innovation Centers in all regions, providing agricultural services including improving soil conditions, combating plant diseases, and selecting seeds. Yet among smallholder farmers especially, the lack of productive assets, infrastructure, energy, technology and knowledge of how to adapt to climate changes are all causes of low rural productivity that must be addressed.

As part of a package of measures to improve the country's food security, the government has emphasized wheat production and supported poultry and animal farming in recent years. The expansion of processing and packaging capabilities that add value to domestic and export products is another area of focus.

In 2021, the government established the AgroExpress logistical corridor to facilitate expedited trade of agricultural products between Uzbekistan and China and Russia.

Leading Companies:

Indorama: is one of the largest cotton farming companies in the Republic of Uzbekistan, with more than 50,000 hectares of land in the Kashkadarya and Syrdarya regions for growing cotton, wheat, and other agricultural crops.

Lactalis: is a French multinational dairy products corporation and the largest producer of dairy products in the world. The company has a substantial footprint in Uzbekistan.

Nestle: the multinational is the largest producer of food and beverages, as well as an expert in the field of healthy nutrition and healthy lifestyle. Nestle Uzbekistan LLC was founded at the site of the Nafosat dairy plant in Namangan region in February 2000.

Pepsi: is the second largest food and beverage company in the world whose product portfolio includes many iconic brands and a sizeable presence in Uzbekistan. **Coca-Cola**: Coca-Cola Uzbekistan operates 3 plants, in Tashkent, Urgench and Namangan and sells products both indirectly through distributors and directly to onpremise clients to a population of more than 35 million.

Lemken: is a leading international manufacturer of agricultural machinery for soil cultivation, seeding and crop protection. The company has undertaken multiple joint ventures with enterprises in Uzbekistan.

Unlabelled (vanilla) bond issuance

No precedence for bond issuance in the agribusiness sector

Outlook for real economy sustainable bond issuance

The presence of several large multinational companies in the agribusiness sector in Uzbekistan improves the likelihood of real economy sustainable issuance in the country, despite a lack of precedence for unlabelled bonds in the sector. Subsidiaries of some of these large brands, such as Coca-Cola, have been responsible for issuing sustainable bonds in emerging markets as diverse as Turkey and Mexico.

Uzbekistan's high rate of economic growth and rapidly liberalising economy creates a strong backdrop that is likely to attract investors. In contrast to other areas of the Uzbekistani economy such as energy, state-owned enterprises do not have a monopoly in the agribusiness market, leaving space for other potential issuers.

Transport sector

Rail and road are the leading modes of transport used for trade in Uzbekistan, where the government's Ministry of Transport directs the development and implementation of a unified state policy in road, rail, air, river, and metro transport.

Among the country's flagship projects are transport and transit corridors, and a network of logistics hubs as part of national plans to improve transport infrastructure and diversify foreign trade routes. Meanwhile, Uzbekistan's strategy for the development of the transport system up until 2035 envisions growth in freight volumes and improvements in the quality of passenger and freight traffic.¹⁰⁰ Other key investment priorities include the upgrade and construction of some 8,000 kilometres of strategically important public roads and developing new international corridors.

100 Uzbekistan: Building Blocks for Integrated Transport and Logistics Development Policy Paper, World Bank, May 2020

Table 25: Transport sector – unlabelled (v	vanilla) bond issuance
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Pricing date	Maturity date	Issuer	Amount (\$m)	Sector	Issuer type
27/04/2021	04/05/2026	UzAuto Motors JSC	300	Auto/Truck-Manufacturers	Corporate

Source: Environmental Finance Data

Uzbekistan's transport sector is plagued by high costs and crumbling infrastructure that was ranked 99th out of 160 countries in the 2018 International Logistics Performance Index.¹⁰¹ Management of the road sector is highly centralised, leading to poor governance, conflicts of interest, a lack of accountability and transparency, and inefficient use of public resources. For example, projects are not competitively tendered, meaning that up to 90% of contracts are awarded to a single entity, the Committee for Automobile Roads.¹⁰² Poor maintenance has led to a high fatality rate on Uzbekistan's roads.

A priority for Uzbekistan is improving connectivity and integration with its key trading partners in the region, especially China. To this end, the country's leaders plan to connect to China via the proposed China-Kyrgyzstan-Uzbekistan railroad, which will provide faster and cheaper transportation of goods. All three countries have inked a roadmap outlining the construction of the Mazar-i-Sharif-Kabul-Peshawar railroad, which aims to connect Uzbekistan with Pakistani ports via Afghanistan.

Leading Companies

Committee for Automobile Roads (CAR): is an authorized body for the management of Uzbekistan's roads and is responsible for policy, planning, operations, and maintenance of the road sector as well as the construction of international corridors.

Uzbekistan Railways (Uzbekistan Temir Yo'llari) (UTY): is the national state-owned rail carrier of Uzbekistan and owns and operates all railways within the country.

Navoi International Intermodal Logistics Center: is one of the largest and most technologically advanced air hubs in the region based at Navoi international airport and cargo terminal. Uzbekistan Airways and Korean Air have agreed to jointly participate in the project. **Uzbekistan Airways**: is the flag carrier of Uzbekistan, headquartered in Tashkent. The airline operates routes to domestic cities, as well as routes within Asia and to Europe and North America.

UzAuto Motors: is a state-owned manufacturer of automobiles founded in August 1992 and is based in Tashkent, Uzbekistan.

Unlabelled (vanilla) bond issuance

Uzbekistan's transportation sector has issued one unlabelled bond to date, namely a \$300 million issuance in 2021 from state-owned automotive manufacturer UzAutoMotors (see table 25). The bonds held a tenor of 5 years and were rated stable by Fitch ratings.

Outlook for sustainable bond issuance

The highly centralised nature of Uzbekistan's transport sector makes real economy sustainable issuance unlikely for the foreseeable future. In the best-case scenario, the country will require PPPs to allow any pipeline of potential projects to be feasible.

Upgrades to improve the poor state of Uzbekistan's transportation infrastructure could be funded by issuing sustainable bonds, yet this is made unlikely by the lack of prior issuance in the sector in the context of Uzbekistan. Uzbekistan's modest real economy aviation and airport sector could also use proceeds from sustainable bonds to modernise facilities. Sustainable bond issuance is unlikely, not least because of the difficulties demonstrating that use of proceeds are green, or of implementing an alternative sustainability-linked structure in such an undeveloped bond market.

101 Transport Strategy of Uzbekistan: Current Developments, Eurasian Research Institute, Accessed April 2023102 Uzbekistan: Building Blocks for Integrated Transport and Logistics

Development Policy Paper, World Bank, May 2020

Glossary

Green Bonds

Green Bonds are any type of bond instrument where the proceeds will be exclusively applied to finance or refinance, in part or in full, new and/or existing eligible green projects and which are aligned with the four core components of the Green Bond Principles (GBP).

Green Bond Principles (GBP)

The Green Bond Principles (GBP) are voluntary guidelines that recommend transparency and disclosure and promote integrity in the development of the green bond market by clarifying the approach for issuance of a green bond. The GBP have four core components:

- 1. Use of Proceeds
- 2. Process for Project Evaluation and Selection
- 3. Management of Proceeds
- 4. Reporting

Greenhouse Gases (GHGs)

The UN identifies seven main greenhouse gases (GHGs) that are major drivers of climate change: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃).

As CO_2 is by far the most common GHG caused by human activity, it is sometimes used as a shorthand expression for all greenhouse gases.

International Capital Market Association (ICMA)

ICMA is a not-for-profit association representing more than 600 organisations in 65 countries. They include private and public sector issuers, banks and securities houses, asset managers and other investors, capital market infrastructure providers, central banks, law firms and others. ICMA serves as the secretariat of the Green Bond Principles (and the related Social Bond Principles, Sustainability Bond Guidelines and Sustainability-Linked Bond Principles).

Paris Agreement on climate change

The Paris Agreement is a binding UN agreement to strengthen the global response to climate change by keeping the average global temperature rise this century well below 2° C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5° C.

It was agreed at the annual UN climate change summit in Paris in 2015 but entered into force in November 2016.

Social Bonds

Social Bonds are 'use of proceeds' bonds that raise funds for new and existing projects that address or mitigate a specific social issue and/or seek to achieve positive social outcomes.

Social Bond Principles

Like the GBP, the Social Bond Principles (SBP) are voluntary guidelines that recommend transparency and disclosure and promote integrity in the development of the social bond market. They have the same four components as the GBPs.

Sustainable Development Goals (SDGs)

The 17 SDGs were adopted by the United Nations in 2015 as the cornerstone of its 2030 Agenda for Sustainable Development. They acknowledge that many environmental and social objectives are interlinked and are increasingly being referenced by companies and investors in their impact reports.

The goals are:

- 1. No Poverty
- 2. Zero Hunger
- 3. Good Health and Well-being
- 4. Quality Education
- 5. Gender Equality
- 6. Clean Water and Sanitation
- 7. Affordable and Clean Energy
- 8. Decent Work and Economic Growth
- 9. Industry, Innovation and Infrastructure
- 10. Reduced Inequality
- 11. Sustainable Cities and Communities
- 12. Responsible Consumption and Production
- 13. Climate Action
- 14. Life Below Water
- 15.Life on Land
- 16. Peace and Justice Strong Institutions
- 17. Partnerships to achieve the Goal

Sustainability Bonds

Sustainability bonds are bonds whose proceeds will be used exclusively to finance or re-finance a combination of both green and social projects. To be labelled as Sustainability Bonds, they must align with the four core components of both the GBP and SBP with the former being especially relevant to underlying green projects and the latter to underlying social projects.

Sustainability Bond Guidelines

These voluntary guidelines were issued to help ensure the integrity of the fast-growing market for sustainability bonds. The four core components of the GDP and SBP and their recommendations on the use of external reviews and impact reporting also apply to sustainability bonds.

Sustainability-Linked Bonds

Sustainability-linked bonds (SLBs), unlike green, social or sustainability bonds, are not 'use-of-proceeds' instruments. Rather, they are intended to be used for the issuer's general purposes but the terms of the bond (e.g. coupon, maturity, repayment amount) can vary depending on whether the issuer achieves predefined sustainability objectives within a certain time. Those objectives are measured by predefined Key Performance Indicators (KPIs) and assessed against Sustainability Performance Targets (SPTs).

Sustainability-Linked Bond Principles

The Sustainability-Linked Bond Principles (SLBPs) provide guidelines that recommend structuring features, disclosure and reporting for SLBs. The SLBPs have five core components:

- 1. Selection of KPIs
- 2. Calibration of SPTs
- 3. Bond characteristics
- 4. Reporting
- 5. Verification

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