



Federal Ministry
of Finance

Green bond allocation

report 2023

Allocation report 2023

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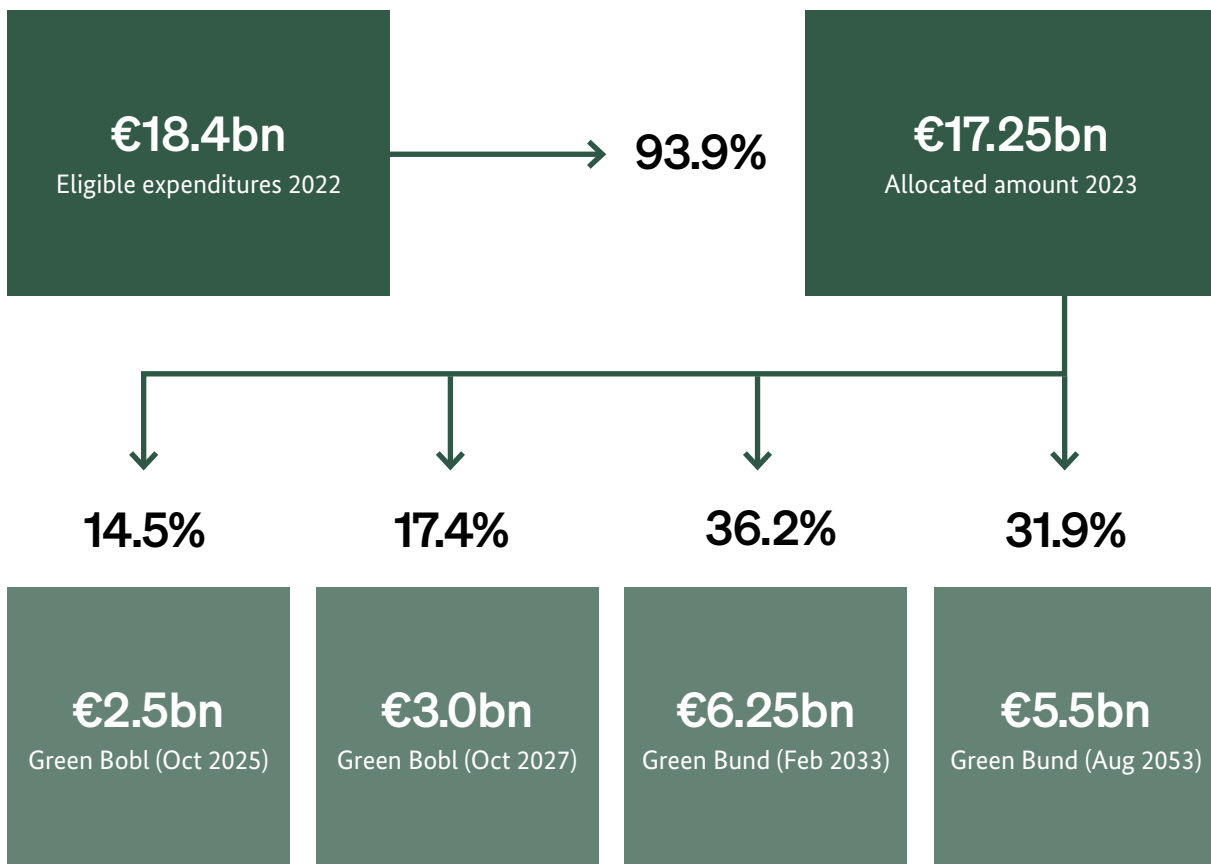
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Summary – Green bond allocation report 2023

→ This allocation report provides an overview of how an amount equal to the proceeds from the Green German Federal securities newly issued or reopened in 2023 has been fully allocated to “eligible green expenditures”, as defined in the Green Bond Framework of 24 August 2020, from the 2022 federal budget. These eligible green expenditures (i.e. expenditures that qualify as green) amount to around €18.4bn, of which €17.25bn were taken into account for the federal government’s green issuances in 2023 and proportionately allocated to the four securities.



Overview

2023 Allocation

Table 1

Sector (in line with the Green Bond Framework)	Eligible expenditures 2022	Allocated amount	Green Bobl (Oct. 2025)	Green Bobl (Oct. 2027)	Green Bund (Feb. 2033)	Green Bund (Aug. 2053)
Transport	8,931.1	8,387.2	1,215.5	1,458.6	3,038.8	2,674.2
International cooperation	4,442.1	4,171.6	604.6	725.5	1,511.4	1,330.1
Research, innovation and awareness raising	1,534.0	1,440.6	208.8	250.5	522.0	459.3
Energy and industry	2,743.5	2,576.4	373.4	448.1	933.5	821.5
Agriculture, forestry, natural landscapes and biodiversity	717.9	674.2	97.7	117.2	244.3	215.0
Total	18,368.6	17,250.0	2,500.0	3,000.0	6,250.0	5,500.0

figures are rounded

49% Almost half of the 2023 issuance volume is earmarked for the maintenance and development of the transport sector, particularly for Germany's **high-quality rail network**, underscoring the government's efforts to make passenger and freight transport greener and more environmentally friendly. The development and use of alternative fuels, drive technologies and their infrastructures as well as public transport and cycling are also funded.

24% Germany supports emerging and developing countries in their efforts to achieve more environmentally sustainable economies. This is reflected in the fact that **international cooperation** accounts for a significant proportion of the allocated green expenditures. A key area is bilateral financial cooperation to support medium and long-term investments in German development cooperation partner countries.

8% To support the transition to a sustainable economy, green expenditures **on research, innovation and awareness raising** make up an important part of the federal budget. The expenditures are found partly in this sector (8% of the eligible expenditures) and partly in the other four sectors (if there is a clear connection to the respective sector). Taken together, they account for 13% (about €2.4bn) of the total allocated expenditures. The priorities in this sector are research for sustainability as well as the research areas of aerospace, energy, transport and digitalisation.

15% Germany is steadily and reliably expanding the use of **renewable energy** to achieve the objectives of the Federal Climate Action Act (*Bundes-Klimaschutzgesetz*). **Energy efficiency** is to be increased in the energy industry itself as well as in the buildings sector and energy-intensive industries.

4% In order to advance climate action and adaptation to climate change, the German government supports projects for **sustainable agriculture and forestry, coastal and flood protection** as well as the conservation of natural habitats and **biodiversity**.

1. Overview of the 2023 issuances

In 2023, the Federal Republic of Germany issued Green German Federal securities with a total volume of €17.25bn. Two previously issued Green Federal notes were reopened, and there were new issues of a 10-year and 30-year Green Federal bond.¹ This has both extended the green Bund curve with its sixth and seventh maturity points (February 2033 and August 2053) and boosted the liquidity of outstanding green bonds through large reopenings.

Reopening of 5-year Green Federal note maturing on 10 October 2025 (ISIN: DE0001030716)

The 5-year Green Federal note maturing on 10 October 2025 was tapped by €1.5bn on 24 January 2023 and by €1bn on 7 June 2023 to a total volume of €7.5bn. In the first reopening the yield spread (“greenium”) compared to its conventional twin² was roughly 9 basis points and in the second reopening roughly 6.6 basis points.

Reopening of 5-year Green Federal note maturing on 15 October 2027 (ISIN: DE0001030740)

The 5-year Green Federal note maturing on 15 October 2027 was tapped by €1.5bn on 21 March 2023 and by the same amount on 30 August 2023 to a total volume of €8bn. In the first reopening the “greenium” was roughly 7 basis points, and in the second reopening roughly 4.4 basis points.

New issue of 10-year Green Federal bond maturing on 15 February 2033 (ISIN: DE000BU3Z005)

The 10-year Green Federal bond maturing on 15 February 2033 was newly issued on 25 April 2023 with an issuance volume of €5.25bn. The “greenium” was fixed in the syndication process at 0.5 basis points. On 5 July 2023 the size of the bond was increased by €1bn to €6.25bn. In this auction the “greenium” was around 1.7 basis points.

New issue of 30-year Green Federal bond maturing on 15 August 2053 (ISIN: DE0001030757)

The 30-year Green Federal bond maturing on 15 August 2053 was newly issued on 13 June 2023 with an issuance volume of €4.5bn. The “greenium” was fixed in the syndication process at 0.5 basis points. On 31 October 2023 the size of the bond was increased by €1bn to €5.5bn. In this auction the “greenium” was around 1.4 basis points.

1 You can find further information on the 2023 issuances at <https://www.deutsche-finanzagentur.de/en/federal-securities/types-of-federal-securities/green-federal-securities/issuance>.

2 The Federal Republic of Germany always issues its green bonds with an identical maturity and identical coupon to an existing conventional federal security. Further information on this twin bond approach can be found on the website <https://www.deutsche-finanzagentur.de/en/federal-securities/types-of-federal-securities/green-federal-securities/twin-bond-concept>.

Time of issuance and outstanding volume of Green German Federal securities at the end of 2023

Figure 1

(The darker green denotes the securities that were newly issued or reopened in 2023.)



2. Green expenditures

The established concept of Green German Federal securities supports the development of the green bonds market and increases the transparency of green spending by the German government. The twin bond approach is explained in detail in the Green Bond Framework.³

2.1 Certainty and regularity

In accordance with the German government's approach, the proceeds from bond issuances in any given year are always allocated exclusively to expenditures in the previous year. The proceeds from the Green German Federal securities issued in 2023 are therefore allocated entirely to eligible expenditures from the 2022 federal budget (including the Climate and Transformation Fund⁴).

Allocating proceeds exclusively to already incurred expenditures guarantees the budgetary sovereignty of the German Bundestag and at the same time provides investors with transparency at an early stage and gives them assurance that the funds are being used appropriately.

The independent Bundesrechnungshof (Germany's supreme audit institution)⁵ audited the budget account and the account of assets and

liabilities for the fiscal year 2022. It did not find any discrepancies between the revenues and expenditures listed in the accounts and those in the underlying records. This also applies to special funds. The Bundesrechnungshof used a mathematical statistical method to verify to what extent the revenues and expenditures in the federal budget had been accurately recorded. In its 2023 annual report, the Bundesrechnungshof did not address whether or not expenditures can be defined as "green".⁶

2.2 Selection of eligible green expenditures

Eligible green expenditures – hereinafter referred to as "eligible expenditures" – are expenditures from all areas of the federal budget that support the overall climate and sustainability targets set out in the Green Bond Framework. The expenditures can relate to tangible assets such as infrastructure, buildings, landscapes and forests, but also to intangible assets such as individual and institutional competencies, research, innovation and scientific findings. In cases in which the federal government supports *Länder* and local authority programmes (co-financing), only the Federation's share is taken into account and allocated.

The selection of eligible expenditures is made in accordance with the key objectives of Germany's climate action policies. The eligible expenditures are also mapped to the six environmental objectives of the EU taxonomy for environmentally sustainable economic activities.⁷

³ https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/Green-BondFramework_2020_en.pdf

⁴ With the entry into force of the Second Act Amending the Act Establishing a Special Energy and Climate Fund on 22 July 2022, the name of the special fund was changed to "Climate and Transformation Fund" (see Federal Gazette 2022 part I no 26 of 21 July 2022). The name "Climate and Transformation Fund" (KTF) will be used for the purpose of the 2023 allocation report.

⁵ The Bundesrechnungshof audits the accounts and determines whether public finances have been properly and efficiently administered by the federal government (Article 114 of the Basic Law (*Grundgesetz*)). The Bundesrechnungshof is a supreme federal authority. As an independent financial control body it is subject only to the law.

⁶ <https://www.bundesrechnungshof.de/SharedDocs/Downloads/DE/Berichte/2023/hauptband-2023/gesamtband.pdf>

⁷ See Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088. Allocations were made in accordance with the objectives set out in Article 9 of the abovementioned Regulation.

The mapping of eligible expenditures with the United Nations' 17 Sustainable Development Goals (SDGs) is set out in the Green Bond Framework. Furthermore, a second party opinion (SPO⁸) validated the Framework's alignment with best practices in the market and the significant contribution being made to the relevant UN Sustainable Development goals.

The eligible expenditures were selected from the 2022 federal budget by the Core Green Bond Team chaired by the Federal Ministry of Finance in cooperation with the responsible federal ministries. The Green Bond Principles of the International Capital Market Association (ICMA) served as the basis for the selection of eligible expenditures.⁹ The selection was made on the basis of currently available information in particular with regard to the objectives of the spending programmes. Documentation of existing federal expenditures is publicly available.¹⁰ Possible impacts will be transparently presented in the separate 2023 impact report. In accordance with the Green Bond Framework, impact reports are generally available one to three years after the respective issuance.

Control mechanisms and safeguards against corruption and money laundering have been set up for every category of expenditure in accordance with European and national legislation and standards, e.g. the Federal Government Directive Concerning the Prevention of Corruption in the Federal Administration (*Richtlinie der Bundesregierung zur Korruptionsprävention in der Bundesverwaltung*).¹¹ In the area of economic cooperation and development, these safeguards are supplemented by the Federal Ministry for Economic Cooperation and Development's binding Strategy Paper on Anti-Corruption

and Integrity in German Development Policy.¹² In order to mitigate the risk of modern slavery and child labour and to strengthen human rights in developing countries, social safeguards in accordance with European and national legislation and standards apply to every expenditure category. These include the Federal Ministry for Economic Cooperation and Development's strategy "Human Rights in German Development Policy", which sets binding guidelines for the design of programme proposals for bilateral German technical and financial cooperation.¹³

The Core Green Bond Team identified approximately €18.4bn of eligible expenditures in the 2022 federal budget. The expenditures were examined by the following federal ministries within their respective remits. The names and responsibilities of the ministries correspond to the structure of the ministries in the 2022 financial year¹⁴:

- Federal Ministry for Economic Affairs and Climate Action (BMWK)
- Federal Ministry of Food and Agriculture (BMEL)
- Federal Ministry for Digital and Transport (BMDV)
- Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV)

12 <https://www.bmz.de/resource/blob/23488/6670408c26037dcf69ef5aefce87d60/strategie-papier318-4-2012-data.pdf>

13 <https://www.bmz.de/resource/blob/194624/menschenrechtskonzept-der-deutschen-entwicklungspolitik.pdf>

14 Official order of the ministries in accordance with Annex 2 of the announcement of the formation of the government on 8 December 2021 in the Federal Gazette of 10 December 2021 (<https://www.bundesanzeiger.de/pub/de/amtlicher-teil?19&year=2021&edition=BA-nz+AT+10.12.2021>). The following federal ministries were renamed in accordance with Annex 1 no II of the announcement: Economic Affairs and Energy (BMW) to Economic Affairs and Climate Action (BMWK), Transport and Digital Infrastructure (BMVI) to Digital and Transport (BMDV) and Environment, Nature Conservation and Nuclear Safety (BMU) to Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV). Responsibility for building, urban development, housing and regional planning was transferred from the Federal Ministry of the Interior and Community (BMI) to the Federal Ministry for Housing, Urban Development and Building (BMWSB) (Annex 1 no IX of the announcement).

8 https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/SPO.pdf

9 <https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/>

10 <https://www.bundeshaushalt.de>

11 Federal Government Directive Concerning the Prevention of Corruption in the Federal Administration (*Richtlinie der Bundesregierung zur Korruptionsprävention in der Bundesverwaltung*), http://www.verwaltungsvorschriften-im-internet.de/bsvwvbund_30072004_04634140151.htm

- Federal Ministry of Education and Research (BMBF)
- Federal Ministry for Economic Cooperation and Development (BMZ)
- Federal Ministry for Housing, Urban Development and Building (BMWSB)

An interministerial working group chaired by the Federal Ministry of Finance (BMF) confirmed the selection of eligible expenditures.

The eligible expenditures include measures financed by the Climate and Transformation Fund (formerly the Energy and Climate Fund). This special fund contributes significantly towards implementing Germany's *Energiewende*, or transition to a low-carbon economy. Many of the climate action projects funded by the Climate and Transformation Fund are embedded in measures that are implemented by various ministries.

Federal budgetary expenditures for which grants from the EU recovery instrument "Next Generation EU" are provided under the German Recovery and Resilience Plan (GRRP) were excluded as eligible expenditures for Green German Federal securities.

3. Allocation of proceeds from the 2023 issuances

Eligible expenditures 2022

€18,368,600,000.00

Issuance volume 2023

€17,250,000,000.00

The issuance volume of Green German Federal securities in 2023 amounts to €17.25bn. The allocation overall as well as at the level of the individual budget items is proportionate to the volume of eligible expenditures in 2022.

The 2022 eligible expenditures amount to €18.3686bn. As illustrated below, the expenditures are distributed among the five sectors of the Green Bond Framework and mapped to the six environmental objectives of the EU taxonomy for environmentally sustainable economic activities.¹⁵

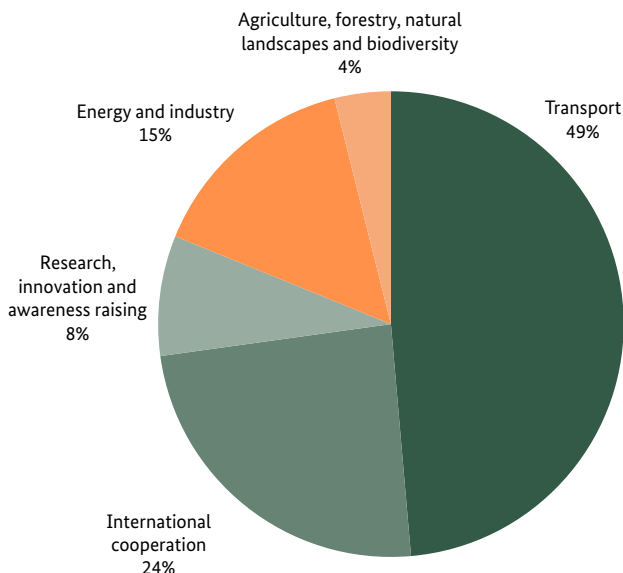


Figure 2: Breakdown by sector

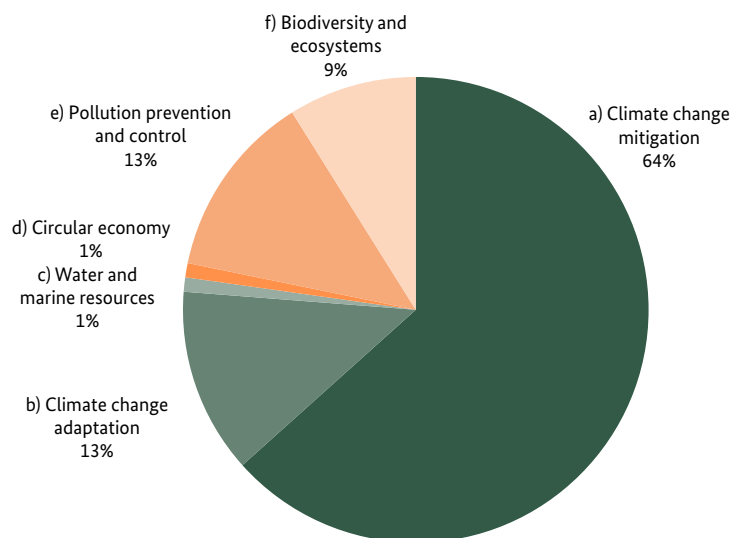


Figure 3: Breakdown in accordance with the EU's environmental objectives (as listed in Article 9 of the EU Taxonomy - see footnote 7)

¹⁵ See footnote 7.

Breakdown of 2022 eligible expenditures by sector

Table 2

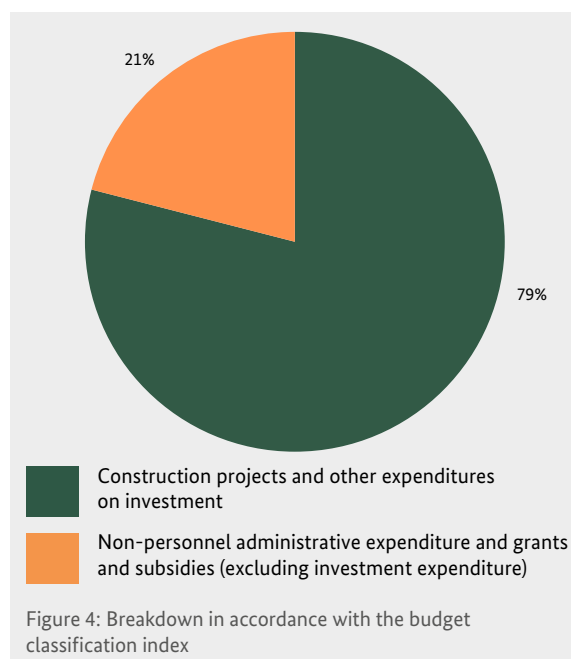
Sector	Eligible expenditures	Allocated amount	Number of budget items
	in €million		
Transport	8,931.1	8,387.2	24
International cooperation	4,442.1	4,171.6	14
Research, innovation and awareness raising	1,534.0	1,440.6	23
Energy and industry	2,743.5	2,576.4	10
Agriculture, forestry, natural landscapes and biodiversity	717.9	674.2	24
Total	18,368.6	17,250.0	95

In 2023, around 94% of the 2022 eligible expenditures were used for the allocation. Table 2 shows the allocated amounts by sector, in the order they are presented in the Green Bond Framework. The following subchapters describe the sectors more closely and provide detailed overviews of all 95 expenditure items in the 2022 federal budget in which eligible expenditures were identified. In tables 2 to 12 the eligible expenditures are given as exact amounts, while the allocated amounts are rounded. The allocation is made on the basis of the above-mentioned proportional distribution.

The composition of the allocated expenditures is identical for the issuance volumes of all Green German Federal securities issued in 2023. The expenditures are allocated to the four securities proportionately and in relation to the issuance volumes in the amounts of €2.5bn (5-year Green Federal note maturing in October 2025), €3.0bn (5-year Green Federal note maturing in October 2027), €6.25bn (10-year Green Federal bond maturing in February 2033) and €5.5bn (30-year Green Federal bond maturing in August 2053), respectively.

The allocation set out in this report completes the allocation of the eligible expenditures from the 2022 budget. The non-allocated 6% of eligible expenditures in each budget item will not be used for issuances of Green German Federal securities in other years.¹⁶

The 2022 eligible expenditures are distributed as follows in accordance with the federal budget classification index¹⁷:



¹⁶ For all issuances in a given calendar year (regardless of whether they are new issuances or reopenings of Green German Federal securities), only the eligible expenditures from the previous year's federal budget are relevant. In accordance with section 4.3 of the Green Bond Framework, the issuance volume of a tap – regardless of the year of the first issuance of the security – is treated like a new issue in terms of (a) allocation of the proceeds and (b) reporting.

¹⁷ Pursuant to section 10 of the Budgetary Principles Act (*Haushaltsgrundsätze-gesetz*), the subdivision into budget items is governed by the administrative provisions on the categorisation of revenue and expenditure in the budget plan by type (budget classification index). The budget classification index can be found at <https://www.bundesfinanzministerium.de/Content/DE/Downloads/Oeffentliche-Finanzen/Haushaltsrecht-und-Haushaltssystematik/gruppierungsplan.pdf>

3.1 Transport



In 2022, the transport sector was responsible for 20% of Germany's greenhouse gas emissions, in particular from road transport.¹⁸ It is therefore essential that the transport sector contributes to achieving Germany's climate action targets. To this end, the German government has adopted extensive measures to decarbonise passenger and freight transport and to make it more environmentally friendly. The proceeds from the Green German Federal securities issued in 2023 were allocated to 2022 expenditures in the following areas of the transport sector:

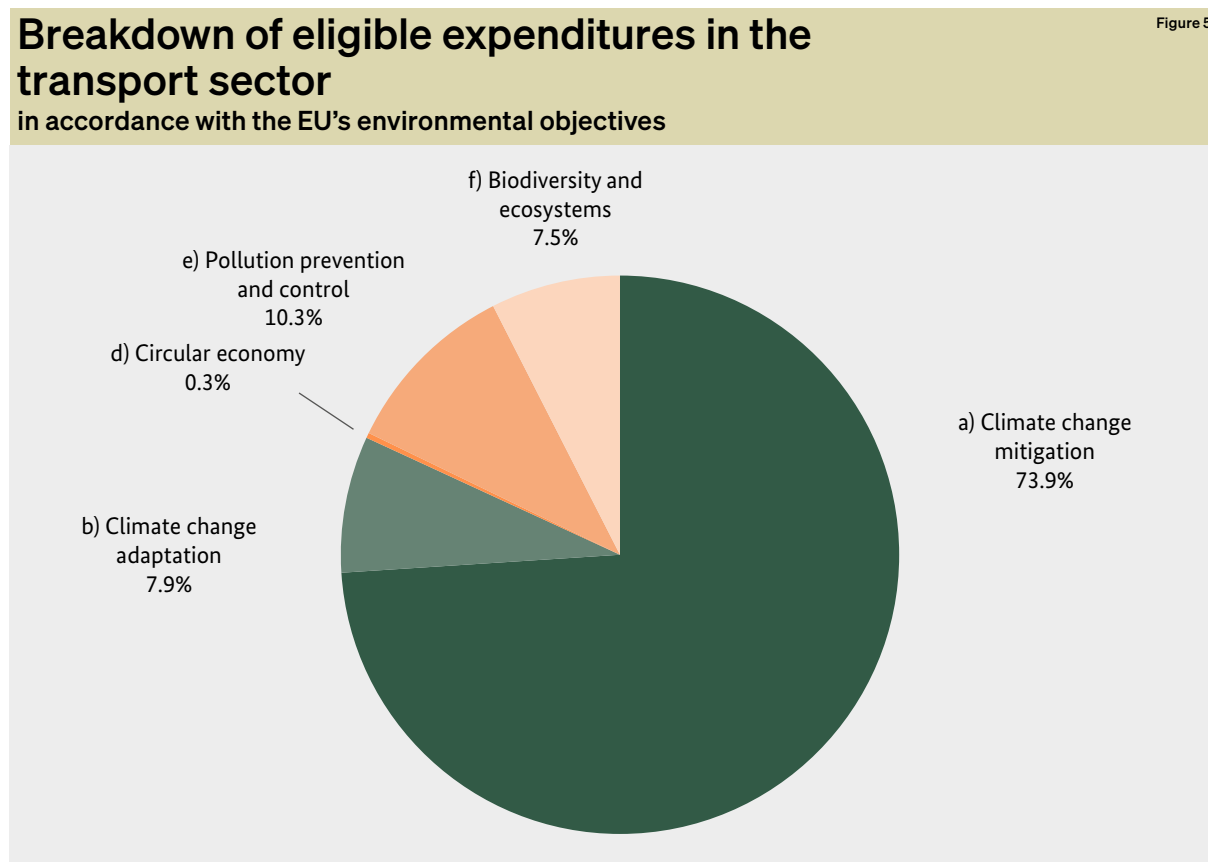
Breakdown of 2022 eligible expenditures in the transport sector by category

Table 3

Transport	Eligible expenditures	Allocated amount	Share of allocation within the sector	Number of budget items
	in €million			
Rail transport	7,259.5	6,817.4	81.3%	9
Alternative drive systems and fuels	442.5	415.6	5.0%	5
Public transport	975.4	916.0	10.9%	3
Cycling	253.7	238.3	2.8%	7
Transport – Total	8,931.1	8,387.2	100%	24

¹⁸ The final greenhouse gas emission balance 2022 is available at <https://www.umweltbundesamt.de/en/press/pressinformation/detailed-greenhouse-gas-emissions-figures-for-2022>

The eligible expenditures in the transport sector are mapped to the six environmental objectives of the EU taxonomy for environmentally sustainable economic activities as follows¹⁹:



Rail transport

Rail transport and rail infrastructure have a crucial part to play in achieving Germany's climate targets. In particular, transport needs to be shifted from road to rail and the electrification of drive systems and rail routes needs to be expanded to achieve decarbonisation.

To this end, the federal government provides investment subsidies, throughout the country, for rail construction and expansion projects, for the maintenance of the high-quality rail infrastructure, and to address bottlenecks in public transport networks. In 2022, eligible federal subsidies for rail infrastructure totalled over €6.6bn (see budget items 1, 2, 4 and 7 in table 4).

The federal government is also reducing charges for track access and the use of rail infrastructure facilities for freight rail operators and is supporting investments in construction and expansion projects, the reactivation and replacement of sidings and multifunctional infrastructure facilities, and in main and feeder lines used by industry for road/rail transloading. The aim of the measures is to improve the efficiency of rail freight transport and to reduce costs (e.g. by reducing processing and waiting times and optimising resource utilisation). The federal government also supports combined transport.²⁰ Government funding contributes to more shipments being made using multiple

²⁰ Combined transport is a special form of freight transport whereby loading units (containers, swap bodies or semi-trailers) are transported over longer distances by rail or via waterways. Heavy goods vehicles are used only for the shortest possible legs of the journey, to transport loading units to a combined transport transloading site or to pick them up from a transloading site and deliver them to the final destination.

¹⁹ See footnote 7.

modes of transport and thereby to a reduction in road transport.

Alternative drive systems and fuels

The electrification of road transport, in particular, is essential for reaching Germany's climate targets. Funding is being provided to promote the transformation towards electric mobility, innovative drive technologies, as well as the necessary infrastructure and the system integration into the energy system, so that all modes of transport can contribute to achieving this goal.²¹ In the area of research, development and pilot projects, existing projects are being continued and new measures driven forward in order to contribute to a successful transformation towards electric mobility and the system integration of electric vehicles and infrastructure.²²

Public transport

Due to its energy efficiency and high degree of electrification, public transport produces significantly less greenhouse gas emissions per passenger kilometre than private motorised transport. A modal shift could therefore reduce the greenhouse gas emissions produced by the transport sector. This calls for an attractive and user-friendly public transport system. However, a modal shift from private motorised transport to public transport not only has the aim of reducing greenhouse gas emissions, it also has an important role to play in making cities and communities more eco-friendly.²³ The use of alternative drive systems in public transport will also accelerate decarbonisation. Since the *Länder* and local authorities are responsible for regional and local public transport, the federal government provides indirect support in the

form of financial assistance. This was increased significantly in 2022.

The funding programme "Digitalisation of Local Transport Systems" (*Digitalisierung kommunaler Verkehrssysteme*) will support the digitalisation of local mobility in order to reduce emissions and strengthen ecomobility. The aim is to mitigate air pollution as well as reduce greenhouse gas emissions.

Cycling

The federal government supports cycling in Germany with (a) measures to implement the National Cycling Plan, (b) investment funding for pilot projects in the area of cycling and for fast cycle routes whose construction falls under the remit of the *Länder*, local authorities and associations of local authorities, (c) subsidies for the expansion of Germany's network of cycling routes and (d) financial assistance to the *Länder* to enable investments in cycling. Furthermore, the construction and maintenance of cycle paths on federal roads are financed through the federal budget. The eligible expenditures for cycling almost doubled compared to the previous year.

21 Case studies 1 and 4 in the 2023 Green Bond Investor Presentation, slides 36 and 39: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

22 Case study 5 in the 2023 Green Bond Investor Presentation, slide 40: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

23 Case studies 2 and 3 in the 2023 Green Bond Investor Presentation, slides 37 and 38: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

Breakdown of 2022 eligible expenditures in the transport sector by category and budget item and by allocation of expenditures to proceeds of the green bond issuances

Table 4

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to	Allocated to	Allocated to	Allocated to
					Green Bobl (Oct. 2025)	Green Bobl (Oct. 2027)	Green Bund (Feb. 2033)	Green Bund (Aug. 2053)
1. Rail transport								
BMDV	1202	891 01	Construction cost subsidies for investments in the expansion of the federal rail infrastructure	1,790.0	243.6	292.3	609.1	536.0
BMDV	1202	891 02	Construction cost subsidies for investments in the federal rail infrastructure to address bottle-necks in public transport networks.	57.9	7.9	9.5	19.7	17.3
BMDV	1202	891 05	Measures to reduce noise pollution from existing federal railways	129.9	17.7	21.2	44.2	38.9
BMDV	1202	891 11	Construction cost subsidies for maintaining the federal rail infrastructure	4,776.7	650.1	780.1	1,625.3	1,430.3
BMDV	1210	682 51	Reduction of infrastructure facility charges in rail freight transport	37.1	5.0	6.1	12.6	11.1
BMDV	1210	682 52	Reduction in track access charges in rail freight transport	380.4	51.8	62.1	129.4	113.9
BMDV	1210	891 51	Construction cost subsidies for investments in the non-federal rail infrastructure	23.2	3.2	3.8	7.9	6.9
BMDV	1210	892 41	Subsidies to private companies for investments in combined transport	43.8	6.0	7.2	14.9	13.1
BMDV	1210	892 42	Investment subsidies to private companies to fund the construction, expansion, reactivation and replacement of sidings and other rail freight facilities	20.5	2.8	3.3	7.0	6.1
				7,259.5	988.0	1,185.6	2,470.1	2,173.7
2. Alternative drive systems and fuels								
BMDV	1210	686 61	Subsidies for research, development and pilot projects for the market activation of alternative fuel use and the establishment of a corresponding filling and charging infrastructure	5.4	0.7	0.9	1.8	1.6
BMWK (KTF)	6092	683 04	Measures for the expansion of electric mobility	145.3	19.8	23.7	49.4	43.5
BMBF (KTF)				111.6	15.2	18.2	38.0	33.4
BMDV (KTF)	6092	893 02	Subsidies for the construction of filling and charging infrastructure	63.6	8.7	10.4	21.6	19.0
BMDV (KTF)	6092	893 08	Grants for the purchase of commercial vehicles with alternative, climate-friendly engines					
BMWK (KTF)	6092	893 09	Promotion of purchases of buses with alternative drives	116.6	15.9	19.0	39.7	34.9
				442.5	60.2	72.3	150.6	132.5

Breakdown of 2022 eligible expenditures in the transport sector by category and budget item and by allocation of expenditures to proceeds of the green bond issuances

Table 4: continuation

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bobl (Oct. 2025)	Allocated to Green Bobl (Oct. 2027)	Allocated to Green Bund (Feb. 2033)	Allocated to Green Bund (Aug. 2053)
in €million								
3. Public transport								
BMDV	1206	882.02	Financial assistance to the <i>Länder</i> for rail-bound local public transport infrastructure	520.4	70.8	85.0	177.1	155.8
BMDV	1206	891.01	Investment subsidies for major public transport projects to Deutsche Bahn AG and companies majority-owned by the federal government	381.7	52.0	62.3	129.9	114.3
BMDV	1210	883.81	Measures to digitalise local transport systems	73.3	10.0	12.0	24.9	21.9
				975.4	132.8	159.3	331.9	292.1
4. Cycling								
BMDV	1201	746.22	Construction of bike lanes including maintenance (federal highways)	113.3	15.4	18.5	38.6	33.9
BMDV	1210	632.91	Implementation of the National Cycling Plan – grants to <i>Länder</i> and other public-law entities	20.5	2.8	3.3	7.0	6.1
		686.91	Implementation of the National Cycling Plan – subsidies to companies under private law					
		882.91	Grants to <i>Länder</i> for the construction of cycle highways					
		891.91	Funding of pilot projects in the area of cycling – subsidies to <i>Länder</i> and other public-law entities					
		891.92	Subsidies for the expansion of Germany's network of cycle routes (<i>Radnetz Deutschland</i>)					
BMDV	1210	882.92	Financial assistance to the <i>Länder</i> for investments in cycling through the special programme "Stadt und Land"	119.9	16.3	19.6	40.8	35.9
				253.7	34.5	41.4	86.3	76.0
Transport – Total				8,931.1	1,215.5	1,458.6	3,038.8	2,674.2

3.2 International cooperation for the green transformation



Global challenges such as climate change require global solutions. Germany is highly committed to sustainable development in the context of international cooperation, and assists emerging and developing countries in their transition towards more environmentally sustainable economies and societies. Germany acts in accordance with the United Nations' Sustainable Development Goals, the Paris Agreement and other relevant international agreements and initiatives. Key areas of focus are:

- Mitigating and adapting to climate change
- Transitioning to low-emission, sustainable energy systems

- Improving energy efficiency in production and buildings
- Protecting natural habitats and biodiversity
- The sustainable use of natural resources and energy, including the development of sustainable agriculture and installations for producing renewable energy

Germany also works together with other industrialised countries to jointly accelerate the pace of the energy transition and leverage the potential for innovation and sustainable growth. Examples include energy partnerships and energy dialogues between the German government and countries such as Australia, Japan and the United States, which focus on discussions and cooperation on energy issues.

Germany supports 65 partner countries in the area of bilateral development cooperation (see the BMZ 2030 reform strategy²⁴). The selection of partner countries for future bilateral cooperation is based on global indicators such as good governance, anti-corruption measures and level of need.

Breakdown of 2022 eligible expenditures in the international cooperation sector by category

Table 5

International cooperation	Eligible expenditures	Allocated amount	Share of allocation within the sector	Number of budget items
	in €million			
Bilateral financial cooperation	1,323.9	1,243.3	29.8%	3
Bilateral technical cooperation	828.9	778.4	18.7%	1
International climate and environmental protection	763.7	717.2	17.2%	4
Multilateral cooperation	804.4	755.4	18.1%	2
Specific funding	721.2	677.3	16.2%	4
International cooperation – Total	4,442.1	4,171.6	100.0%	14

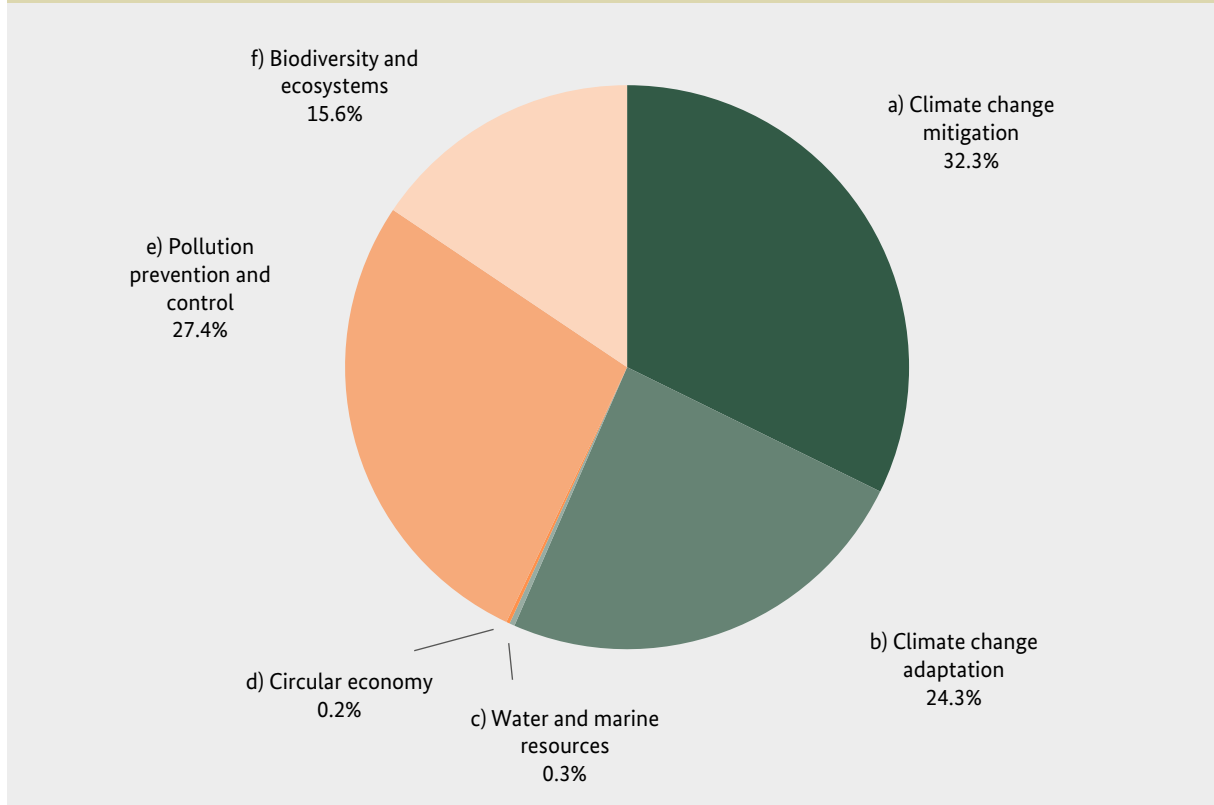
²⁴ The reform strategy BMZ 2030 was published in April 2020 and is available online (in German only) at: <https://www.bmz.de/de/themen/reformkonzept-bmz-2030>. The list of countries is regularly updated on the Federal Ministry for Economic Cooperation and Development's website: <https://www.bmz.de/de/laender>

The selection and approval of specific projects is subject, among other things, to German law, the “Guidelines for bilateral financial and technical cooperation with cooperation partners of German development cooperation”²⁵ and the relevant international agreements and treaties signed by Germany.

The eligible expenditures in the international cooperation sector are mapped to the six environmental objectives of the EU taxonomy for environmentally sustainable activities as follows:²⁷

Breakdown of eligible expenditures in the international cooperation sector in accordance with the EU’s environmental objectives

Figure 6



International assistance is reported in accordance with internationally agreed guidelines, criteria and reporting cycles, either as official development assistance (ODA) to the OECD Development Assistance Committee (DAC)²⁶ and/or as climate finance under the United Nations Framework Convention on Climate Change (UNFCCC), and to the EU.

²⁵ <https://www.bundesregierung.de/breg-de/service/publikationen/leitlinien-fuer-die-bi-laterale-finanzielle-und-tech-nische-zu-sammen-arbeit-mit-ko-operation-partnern-der-deutschen-entwicklung-zusammenarbeit-1939382>

²⁶ The objective of the Development Assistance Committee (DAC) of the Organisation for Economic Cooperation and Development (OECD) is to improve development cooperation qualitatively and quantitatively. See also: <https://www.oecd.org/dac/>

²⁷ See footnote 7. The allocations for technical and financial cooperation budget items, for investments to protect the climate and biodiversity abroad and for the special initiative ONE WORLD – No Hunger to meet the EU’s environmental objectives are based on an evaluation of how the funded measures meet secondary and primary targets in accordance with OECD-DAC markers for climate change adaptation, climate change mitigation, environmental and resource protection and/or supporting biodiversity. There are no special cross-sectoral OECD markers for “water and marine resources” or “circular economy”, which is why they account for only a very small percentage of the eligible expenditures.

Bilateral financial cooperation

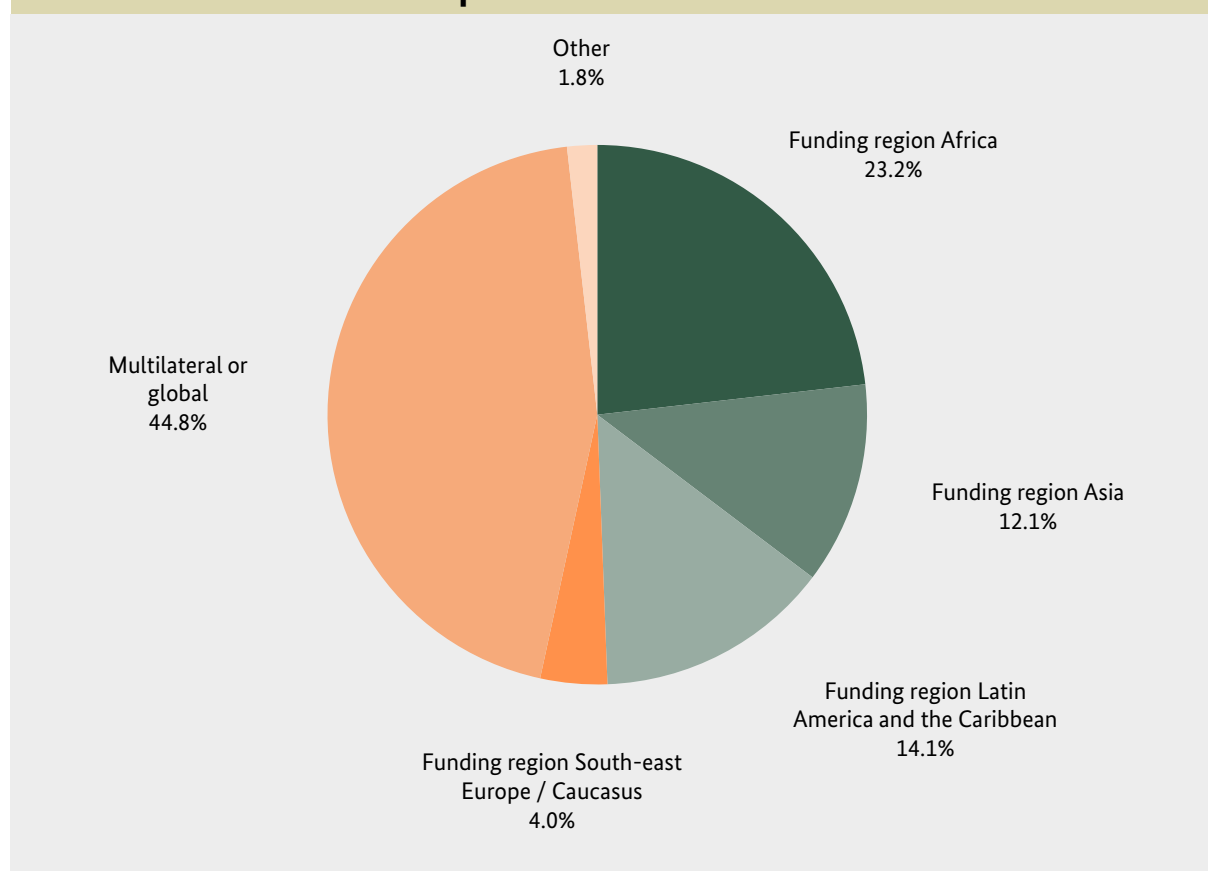
The main aim of bilateral financial cooperation is to support medium- and long-term investments in partner countries within the framework of German development cooperation. Financial cooperation is implemented by the Kreditanstalt für Wiederaufbau (KfW) on behalf of the German government.²⁸

The eligible expenditures in the international cooperation sector are distributed among the following regions:

include ones that promote the green hydrogen value chain²⁹, energy-efficient buildings, access to green energy for households and micro-, small and medium-sized enterprises, a circular economy³⁰, the creation of protected areas for biodiversity, and the fight against deforestation³¹. Financial cooperation projects are generally carried out in collaboration with the governments of the partner countries.

Regional breakdown of eligible expenditures in the international cooperation sector

Figure 7



Disbursements in the context of bilateral financial cooperation are deemed to be eligible expenditures if they contribute to climate change adaptation, climate change mitigation, environmental and resource protection and/or to supporting biodiversity. The methodology used to allocate projects is based on the methodology of the OECD DAC. Supported projects

²⁹ Case study 9 in the 2023 Green Bond Investor Presentation, slide 44: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

³⁰ Case study 10 in the 2023 Green Bond Investor Presentation, slide 45: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

³¹ Case study 11 in the 2023 Green Bond Investor Presentation, slide 46: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

²⁸ As they are funded by the federal budget, these projects are not taken into account for KfW's own green bonds.

Bilateral technical cooperation

In the context of bilateral technical cooperation projects, the German government helps people and organisations in partner countries improve their technical, economic and organisational skills and knowledge and supports them in achieving their national climate and environmental objectives through a more effective, efficient and sustainable use of resources.

Bilateral technical cooperation consists mainly of assistance and advice provided by experts (e.g. at government agencies or other organisations in the partner countries), financing of consultation services and the limited provision and financing of materials and equipment. Most technical cooperation projects are implemented by the German development agency Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

In some cases, bilateral technical cooperation projects are carried out directly by the German government or government agencies, in particular the Federal Institute for Geosciences and Natural Resources (*Bundesanstalt für Geowissenschaften und Rohstoffe*) and the National Metrology Institute (*Physikalisch-Technische Bundesanstalt*).

As is the case for bilateral financial cooperation, disbursements in this area are deemed to be eligible expenditures if they contribute to climate change adaptation, climate change mitigation, to environmental and resource protection and/or to supporting biodiversity. The allocation of projects is based on the methodology of the OECD DAC, as described above. Funded technical cooperation projects include the promotion of framework conditions for sustainable energy systems³² and the protection of natural resources such as soils and forests.³³

³² Case study 6 in the 2023 Green Bond Investor Presentation, slide 41: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

³³ Case study 8 in the 2023 Green Bond Investor Presentation, slide 43: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

International climate and environmental protection

The International Climate Initiative (IKI) to support climate action and biodiversity finances a range of projects that help developing and emerging countries to reduce greenhouse gas emissions in different sectors, adapt to the impacts of climate change, conserve and rebuild natural carbon sinks such as forests, wetlands and grasslands, and protect or restore ecosystems and biodiversity.³⁴ The aim is to help individual UNFCCC members achieve their nationally determined contributions (NDCs) to the Paris Agreement's climate targets and at the same time encourage them to formulate these more ambitiously. This involves not only knowledge transfer but also supporting the development of analytical tools (e.g. PACTA).

The Federal Ministry for Economic Affairs and Climate Action's budget item for international cooperation finances a range of measures through the European Climate Initiative (EUKI) funding instrument. These include climate action measures in the EU, particularly east and south-east Europe, that are intended to contribute to achieving climate neutrality and cooperation in the EU. Measures to establish an international carbon market and carbon reduction projects in developing and emerging countries that contribute to achieving the goals of the Paris Agreement are also financed.

The funded projects to export technologies for tackling marine litter are intended to help prevent waste generation on land, directly at source where possible. The aim is to prevent plastic waste from leaking into rivers and oceans in the first place. This is why funding is provided to cooperation projects that use proven methods to reduce plastic waste in the medium term, or that establish waste management systems and circular economy solutions. Key funding criteria are that the chosen approaches can be multiplied, incorporated into existing systems and continued beyond the project duration.

³⁴ Further information on the projects, financing and investments that are supported by the International Climate Initiative can be found at <https://www.international-climate-initiative.com/en/>. For information on the selection procedures visit <https://www.international-climate-initiative.com/en/find-funding/>

The Federal Ministry for Economic Cooperation and Development's budget item for international climate and environmental action finances new and especially innovative approaches in the area of climate action and adaptation to climate change in developing and emerging countries that contribute to achieving the goals of the Paris Agreement. The budget item is not limited to specific instruments. Projects carried out by GIZ and KfW, by international or UN organisations, private institutions, churches, political foundations and public authorities, as well as research projects, can also be funded.

Multilateral cooperation

Multilateral organisations implement major programmes with considerable scope in developing and emerging countries and coordinate the financial contributions from different donors. They play an important role in supporting transformation processes in the partner countries. That is why Germany contributes, through the Federal Ministry for Economic Cooperation and Development, to multilateral funds such as climate and environment funds. A large part of these funds is allocated to the Green Climate Fund (€320m), the Global Environment Facility (€88.9m) and the Central African Forest Initiative³⁵ (€73.5m).

Specific funding

The Federal Ministry for Economic Affairs and Climate Action supports enterprises that want to develop foreign markets with a range of initiatives. With the goal of positioning German technology and know-how worldwide, the Export Initiative Energy (*Exportinitiative Energie*) helps providers of climate-friendly energy solutions to break into new markets in around 100 countries. International knowledge transfer as well as advisory and training measures make it possible to combine the facilitation of foreign trade with development cooperation and climate action. The Export Initiative for Green Technologies (*Exportinitiative Umwelttechnologien*) supports small and medium-sized German enterprises that specialise in green technology products or

related services to enter foreign markets. Key industries are waste and recycling management and sustainable water management, noise abatement and air pollution control, and sustainable mobility. The Africa Business Network (*Wirtschaftsnetzwerk Afrika*) provides enterprises that want to set up business operations in Africa with information on business conditions in African countries and advice and support on African market entry. It also offers additional measures to promote foreign trade.

Since 2016, the Environment Ministry's Export Initiative for Environmental Protection (*Exportinitiative Umweltschutz*) has been supporting projects by German companies and institutions that promote environmental awareness and that share environmental knowledge and technical know-how, especially in emerging and developing countries. Support is provided in particular to small and medium-sized enterprises providing public services (for example in the areas of circular economy, water and sewage treatment).³⁶

The special initiative "One World – No Hunger" finances projects that contribute to reducing hunger and malnutrition and that support rural development as an important precondition for food security. The eligible expenditures include projects aimed at environmentally sustainable use of natural resources and land, and that contribute to climate change adaptation.³⁷

35 Case study 12 in the 2023 Green Bond Investor Presentation, slide 47: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

36 www.exportinitiative-umweltschutz.de

37 Case study 7 in the 2023 Green Bond Investor Presentation, slide 42: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

Breakdown of 2022 eligible expenditures in the international cooperation sector by category and budget item and by allocation of expenditures to proceeds of the green bond issuances

Table 6

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bobl (Oct. 2025)	Allocated to Green Bobl (Oct. 2027)	Allocated to Green Bund (Feb. 2033)	Allocated to Green Bund (Aug. 2053)
in €million								
1. Bilateral financial cooperation								
BMZ	2301	866 11	Bilateral financial cooperation – loans	280.4	38.2	45.8	95.4	84.0
BMZ	2301	896 01	Financial cooperation with regions	409.4	55.7	66.9	139.3	122.6
BMZ	2301	896 11	Bilateral financial cooperation – grants	634.1	86.3	103.6	215.8	189.9
				1,323.9	180.2	216.2	450.5	396.4
2. Bilateral technical cooperation								
BMZ	2301	896 03	Bilateral technical cooperation	828.9	112.8	135.4	282.0	248.2
				828.9	112.8	135.4	282.0	248.2
3. International climate and environmental protection								
BMWK	0903	532 45	International cooperation	23.1	3.1	3.8	7.9	6.9
BMWK	0903	896 41	Investments to protect the climate and biodiversity abroad	671.7	91.4	109.7	228.5	201.1
BMUV	1601	687 06	International climate and environmental protection – export of technologies to tackle marine litter	13.7	1.9	2.2	4.7	4.1
BMZ	2310	687 01	International climate and environmental protection	55.2	7.5	9.0	18.8	16.5
				763.7	103.9	124.7	259.9	228.7
4. Multilateral cooperation								
BMUV	1601	687 01	Contributions to international organisations	18.0	2.4	2.9	6.1	5.4
BMZ	2303	896 09	Developmentally important multilateral aid for global environmental protection, biodiversity conservation and climate protection	786.4	107.0	128.4	267.6	235.5
				804.4	109.5	131.4	273.7	240.9
5. Specific funding								
BMWK	0904	687 05	Development of foreign markets	16.8	2.3	2.7	5.7	5.0
BMUV	1601	892 02	Export of green and sustainable (environmental) infrastructure	12.7	1.7	2.1	4.3	3.8
BMUV	1604	532 05	International cooperation	8.0	1.1	1.3	2.7	2.4
BMZ	2310	896 31	Special initiative "ONE WORLD – No Hunger"	683.7	93.1	111.7	232.6	204.7
				721.2	98.2	117.8	245.4	215.9
International cooperation – Total				4,442.1	604.6	725.5	1,511.4	1,330.1

3.3 Research, innovation and awareness raising



Strong public-sector engagement in the area of research and innovation is essential for developing concrete, science-based solutions and for a broad knowledge and technology transfer. The German government has underscored its commitment to this sector with diverse and extensive federal spending on basic and applied research and on fostering innovation in the area of climate and environmental action.

If there is a clear connection between the eligible expenditures and a particular sector, research programmes are assigned directly to the respective sector in accordance with

the Green Bond Framework. This is the case, for example, with the budget item “Energy research”; see “Energy and industry” sector. The eligible expenditures for research, innovation and awareness raising therefore amount to €2.4bn across all sectors (13% of the total eligible expenditures).

This sector’s eligible expenditures of €1.5bn are used in particular to develop solutions to combat climate change, curb greenhouse gas emissions, preserve ecosystems and biodiversity and protect natural resources. The project funding is aimed at creating conditions to enable the rapid advancement of promising ideas and innovations. These include projects for the sustainable conversion of energy systems, resource efficiency, material savings, strengthening the circular economy, decarbonising the transport sector and the sustainable development of cities and regions.

Breakdown of 2022 eligible expenditures in the research, innovation and awareness raising sector

Table 7

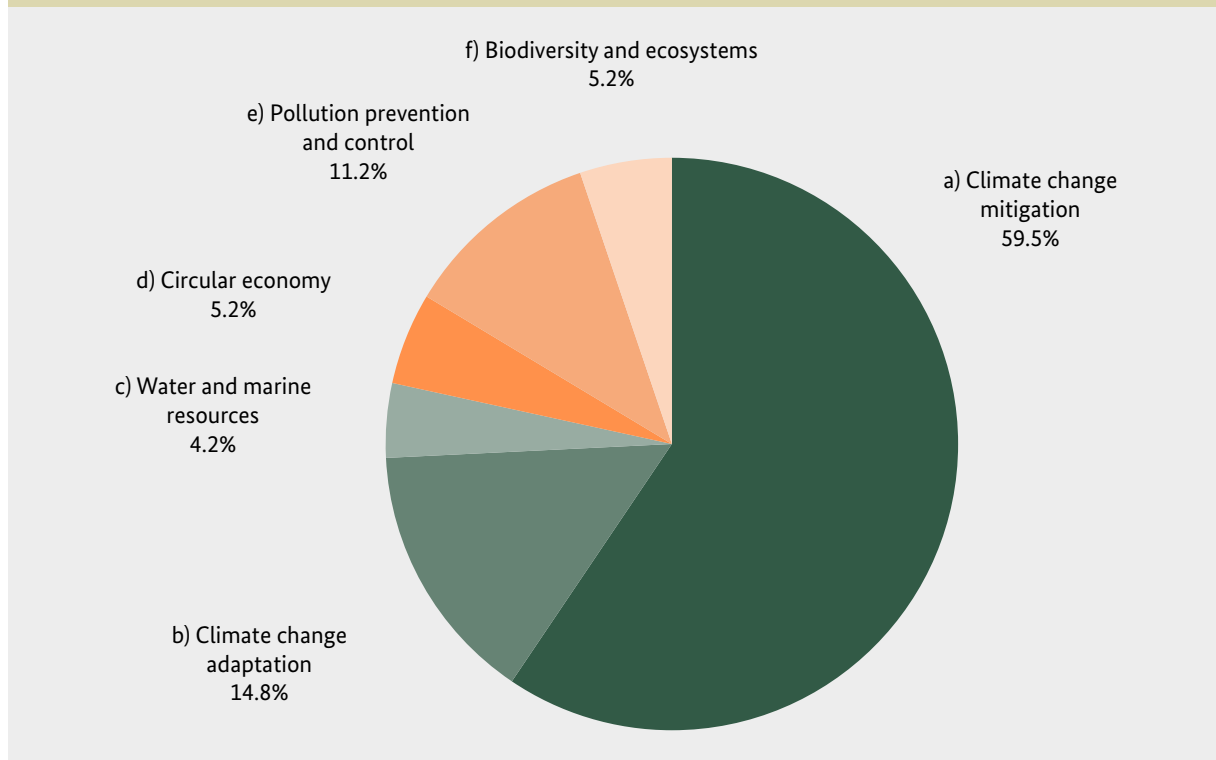
by category

Research, innovation and awareness raising	Eligible expenditures in €million	Allocated amount	Share of allocation within the sector	Number of budget items
Research for sustainability	609.4	572.3	39.7%	7
Environmental protection, nature conservation and climate change adaptation	128.3	120.5	8.4%	5
Aerospace, energy, transport and digitalisation	734.0	689.3	47.8%	7
Lightweight and other construction solutions	62.3	58.5	4.1%	4
Research, innovation and awareness raising – Total	1,534.0	1,440.6	100.0%	23

The eligible expenditures in the research, innovation and awareness raising sector are mapped to the six environmental objectives of the EU taxonomy for environmentally sustainable activities³⁸ as follows:

Breakdown of eligible expenditures in the research, innovation and awareness raising sector in accordance with the EU's environmental objectives

Figure 8



Research for sustainability

Research funding is based, among other things, on the implementation of the Research for Sustainability Strategy FONA³⁹, with which the Federal Ministry of Education and Research funds over 5,000 individual and collaborative projects:

- Every aspect of climate research is covered, from the development of effective models and databases to concrete risk prevention measures for regions, cities and local authorities, to new technologies and instruments for climate adaptation as well as for a climate-neutral economy, financial sector and society – in Germany but also worldwide in the context of cooperation projects. In addition, research into carbon

dioxide removal technologies is being carried out.

- Research into sustainable land usage is developing solutions to address conflicts between e.g. nature conservation, food and energy supply, demographic change and intensive land usage through settlement, transport and business.
- A variety of projects are funded in the area of bioeconomic research. These deal, for example, with sustainable agricultural systems of the future, innovative plant cultivation systems, and the transition to a circular economy, in particular to enable a more efficient use of biogenic resources for all application areas and sectors of the economy.

³⁸ See footnote 7.

³⁹ https://www.fona.de/en/fona-strategy/index_en.php

- Energy research, which is funded partly through the German government's "Energy Research Programme" ("*Energieforschungsprogramm*"), is focused on developing sustainable energy systems in Germany. Here, key areas of focus are energy technologies, efficient energy use, green hydrogen, electricity grids and storage systems, industrial processes and sector coupling.
- Under the umbrella of the research programme "MARE:N – Coastal, Marine and Polar Research for Sustainability", research is being carried out into the role of the ocean and permafrost regions in climate processes, the effects of climate change on the polar regions, ocean currents and marine resources, the environmental impact of microplastics in our oceans, and the conservation and use of our coastal regions against the background of society's usage requirements, rising sea levels and extreme weather events.
- FONA also implements the funding priorities "resource efficient circular economy", the water research programme "Wasser:N" and specific research and development activities related to sustainable land management, geological processes, natural hazards and Earth system science. New technologies such as digital applications for sustainable cities, a circular economy and energy supply are also funded. Expert advice and appropriate measures in the key areas of environmental technology and energy efficiency are helping to strengthen small and medium-sized businesses.⁴⁰
- Research into a resource-efficient circular economy also has the aim of reducing the consumption of valuable natural resources and raw materials. Societal transformation processes, and transformations geared towards sustainable development are a key element of social-ecological research projects.

⁴⁰ https://www.bmbf.de/bmbf/de/forschung/innovativer-mittelstand/kmu-innovativ/kmu-innovativ_node.html

Environmental protection, nature conservation and climate change adaptation

The "Environmental Innovation Programme" ("*Umweltinnovationsprogramm*")⁴¹ funds pilot projects focused on technologies and processes for preventing and mitigating pollution, and on the production and use of environmentally friendly products and substitute materials. Initiatives and organisations focusing on environmental protection and nature conservation are also supported with federal grants. With its funding programme "Measures to adapt to climate change" ("*Maßnahmen zur Anpassung an den Klimawandel*"), the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection funds projects that develop measures to tackle heat waves, flooding, extreme rainfall and other effects of global warming, and that support climate change adaptation. The funding programme was initiated as part of the German Strategy for Adaptation to Climate Change.⁴²

Aerospace, energy, transport and digitalisation

The "Maritime Research Programme" ("*Maritimes Forschungsprogramm*")⁴³ provides strategic support to Germany's maritime industry to help secure its technological leadership position and international competitiveness, and to increase its ability to contribute to achieving Germany's environmental policy goals. With the central idea of strengthening Germany's maritime industry, the programme is making a significant contribution to achieving climate-neutral maritime shipping. Parts of the research programme are eligible expenditures: for example, under the funding priority MARITIME.zeroGHG, innovative technologies are being developed in the areas of alternative fuels, energy systems, emission reduction and increased energy efficiency. This funding priority also covers research into ammonia, methanol and hydrogen as future

⁴¹ <https://www.umweltinnovationsprogramm.de/?en=1>

⁴² <https://www.bmu.de/en/topics/climate-adaptation/overview-climate-adaptation>

⁴³ Funding announcement of 1. January 2018: https://www.bmwk.de/Redaktion/DE/Downloads/B/bekanntmachung-zur-foerderung-von-forschung-entwicklung-und-innovation.pdf?__blob=publicationFile&v=4

maritime fuels, innovative energy management systems, and battery and fuel-cell-based energy systems.⁴⁴

Two satellite missions of the Federal Ministry for Economic Affairs and Climate Action's Space and Innovation Programme are studying environmental and climate changes. EnMAP (Environmental Mapping and Analysis Programme) is a German earth observation satellite that provides data to support scientific and application-related research in the areas of environment, agriculture, land usage, water management and geology on a global scale.⁴⁵ The German-French small satellite mission MERLIN (Methane Remote Sensing LIDAR Mission) is a climate mission to observe the greenhouse gas methane in Earth's atmosphere. Starting in 2028, MERLIN will detect and monitor methane in Earth's atmosphere.⁴⁶

In its research fields of aerospace, energy, transport and digitalisation, the German Aerospace Center (*Deutsches Zentrum für Luft- und Raumfahrt*)⁴⁷ conducts research into a range of topics that contribute to the German government's climate goals. Examples include:

- Aviation: Climate research with impact assessments; eco-efficient production methods with circular economy methods; climate-efficient and climate-neutral fuels and drive systems; climate-optimised air traffic routing; designing ultra-efficient aircraft; noise reduction through optimised flight procedures, aircraft designs and technologies
- Aerospace: Earth observation satellites to quantify biomass and emissions (e.g. CO₂, methane); closing material cycles; emission prevention in space travel; green/new forms of fuel: battery development for space missions; solar panels with supercapacitors; hydrogen handling, storage, tanks

44 Case study 18 in the 2023 Green Bond Investor Presentation, slide 53: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

45 <http://www.enmap.org>

46 https://www.dlr.de/rd/desktopdefault.aspx/tab-id-2440/3586_read-31672/

47 <https://www.dlr.de/en>

- Energy: Solar and wind energy generation; green hydrogen and other synthetic sustainable fuels; energy storage and transportation⁴⁸; decarbonising industry⁴⁹; system analyses and sector coupling to optimise energy systems
- Transport and digitalisation: Development of new mobility strategies focused on climate action and resource protection; decarbonising transport through the integration of new drive systems and renewable energy in vehicles and the transport system⁵⁰; digitalisation of mobility through automation and "mobility as a service" strategies to protect resources and reduce land use

In view of Germany's ambitious climate goals, technological solutions for climate-neutral aircraft are urgently needed to make aviation more environmentally friendly by 2050. In addition to the advancements that have already been made, totally new, disruptive technologies are needed to address this huge challenge. Hydrogen as a source of energy is the starting point for the decarbonisation of all types of aircraft. It will enable new forms of propulsion such as fuel cells as well as hybrid systems. To compensate for the low energy content of hydrogen per volume, it is imperative to improve all aircraft subsystems, including aerodynamics, construction methods, lightweighting and all electronic systems. These issues are addressed through the "Aviation Research Programme (Climate)" (*Luftfahrt-forschungsprogramm Klima*) (LuFo Klima). The programme's project funding supports research and development of civil aviation technologies. Additional funding from the Climate and Transformation Fund will be used to advance research into disruptive technologies associated

48 Case study 13 in the 2023 Green Bond Investor Presentation, slide 48: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf.

49 Case study 14 in the 2023 Green Bond Investor Presentation, slide 49: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf.

50 Case study 15 in the 2023 Green Bond Investor Presentation, slide 50: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

with high development risk and to bring these products to market as quickly as possible.⁵¹

With the initiative “AI lighthouse projects for the environment, climate, nature and resources”, the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection supports projects that use artificial intelligence to tackle environmental challenges and hence serve as models for green, climate-friendly and nature-compatible digitalisation. AI lighthouse project funding⁵² focuses on the transfer of research findings into practice and enables projects in the areas of biodiversity, water management, climate adaptation, marine protection, sustainable consumption, sustainable tourism and a circular economy, as well as preventing and mitigating GHG emissions and reducing the environmental footprint of AI systems and hardware. The project “Green AI Hub” is focused on the efficient use of resources by small and medium-sized enterprises as a key component of reducing GHG emissions and achieving climate targets.

Lightweight and other construction solutions

The funding of research into lightweighting is aimed at improving resource efficiency and achieving material and emissions savings.⁵³ For example, the goal of one collaborative project is to develop and optimise innovative, large-scale and longlasting carbon reinforcements for concrete construction. The new reinforcement element makes it possible to save on reinforcement materials and to drastically reduce the environmentally harmful use of concrete as well as carbon emissions.⁵⁴

The Federal Ministry for Housing, Urban Development and Building’s “Future of Building Innovation Programme” (“*Innovationsprogramm Zukunft Bau*”) is providing important impetus for the building industry. A particular focus is on knowledge growth and the transfer of knowledge from technical, architectural and organisational innovations. All of the measures aim to promote the sustainable development of the buildings sector overall.

51 Case study 17 in the 2023 Green Bond Investor Presentation, slide 52: 2023, Folie 52: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

52 Case study 19 in the 2023 Green Bond Investor Presentation, slide 54: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf.

53 <https://www.bmwk.de/Redaktion/EN/Dossier/lightweighting.html>

54 Case study 16 in the 2023 Green Bond Investor Presentation, slide 51: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf.

Breakdown of 2022 eligible expenditures in the research, innovation and awareness raising sector by category and budget item and allocation of expenditures to proceeds of the green bond issuances

Table 8

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bobl (Oct. 2025)	Allocated to Green Bobl (Oct. 2027)	Allocated to Green Bund (Feb. 2033)	Allocated to Green Bund (Aug. 2053)
in €million								
1. Research for sustainability								
BMBF	3004	683 10	DATI, advancing the promotion of innovation and cooperation	3.0	0.4	0.5	1.0	0.9
BMBF	3004	683 40	Bioeconomy	103.9	14.1	17.0	35.4	31.1
BMBF	3004	685 40	Climate research and Earth's natural habitats – R&D projects	84.2	11.5	13.8	28.6	25.2
BMBF	3004	685 41	Energy technologies, efficient energy use, green hydrogen – R&D projects	194.4	26.5	31.7	66.1	58.2
BMBF	3004	685 42	Environmental technologies, resources and geological research	117.3	16.0	19.2	39.9	35.1
BMBF	3004	685 43	Social sciences for sustainability	42.5	5.8	6.9	14.5	12.7
BMBF	3004	685 44	Marine, coastal and polar research	64.1	8.7	10.5	21.8	19.2
				609.4	82.9	99.5	207.4	182.5
2. Environmental protection, nature conservation and climate change adaptation								
BMUV	1601	544 01	Research, studies, etc. [in the area of environmental protection]	42.2	5.7	6.9	14.4	12.6
BMUV	1601	685 01	Funding of climate change adaptation measures	41.4	5.6	6.8	14.1	12.4
BMUV	1601	685 04	Subsidies for organisations in the areas of environmental protection and nature conservation	8.7	1.2	1.4	3.0	2.6
BMUV	1601	892 01	Investments to reduce pollution (environmental innovation programme, Germany)	23.2	3.2	3.8	7.9	6.9
BMUV	1604	544 01	Research, studies, etc. [in the area of nature conservation]	12.8	1.7	2.1	4.4	3.8
				128.3	17.5	21.0	43.7	38.4
3. Aerospace, energy, transport and digitalisation								
BMWK	0901	683 12	Maritime technologies, research, development and innovation	17.0	2.3	2.8	5.8	5.1
BMWK	0901	683 31	Research funding for civil aviation technology projects – funding of individual projects	114.9	15.6	18.8	39.1	34.4
BMWK	0901	683 32	National programme for space and innovation – R&D projects	46.3	6.3	7.6	15.8	13.9
BMWK	0901	685 31 894 31	German Aerospace Center (DLR) – operation and investments	492.0	67.0	80.4	167.4	147.3
BMUV	1601	686 02	Funding for artificial intelligence [for environmental purposes]	15.8	2.2	2.6	5.4	4.7
BMWK (KTF)	6092	683 05	Climate Neutral Aviation	48.0	6.5	7.8	16.3	14.4
				734.0	99.9	119.9	249.7	219.8

Table 8: continuation

Breakdown of 2022 eligible expenditures in the research, innovation and awareness raising sector by category and budget item and allocation of expenditures to proceeds of the green bond issuances

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bobl (Oct. 2025)	Allocated to Green Bobl (Oct. 2027)	Allocated to Green Bund (Feb. 2033)	Allocated to Green Bund (Aug. 2053)
in €million								
4. Lightweight and other construction solutions								
BMWK	0901	683 15	Technology transfer programme – lightweighting	52.7	7.2	8.6	17.9	15.8
BMWK (KTF)	6092	686 15	Resource efficiency and substitution					
BMWK (KTF)	6092	686 17	New construction technologies and materials for low-emission industry					
BMWSB	2501	686 81	Research and development funding in the construction and building sector	9.6	1.3	1.6	3.3	2.9
				62.3	8.5	10.2	21.2	18.7
Research, innovation and awareness raising – Total				1,534.0	208.8	250.5	522.0	459.3

3.4 Energy and industry (including the National Climate Initiative)



In order to achieve its climate targets, Germany is fully committed to the energy transition. The energy and industry sector covers measures designed to accelerate the transition to an economy based largely on renewable energy and to an eco-efficient use of energy and resources. The energy and manufacturing industries are responsible for most of Germany's greenhouse gas emissions.⁵⁵

Renewable energy sources are being continuously and reliably expanded. Energy efficiency is being improved in the energy industry itself as well as in the buildings sector and energy-intensive industries. Energy generation with nuclear energy and coal are being gradually phased out.

The Climate and Transformation Fund is an important instrument to finance measures in this area. The programmes funded by the Climate and Transformation Fund play a central role in implementing the energy transition and in achieving national and international climate action targets. In addition to this sector's eligible expenditures, extensive KfW funding programmes for energy-efficient building refurbishments are taken into account for KfW own green bonds. Moreover, measures earmarked in the German Recovery and Resilience Plan (GRRP) for the EU recovery instrument "Next Generation EU" cannot be taken into account as eligible expenditures for Green German Federal securities.

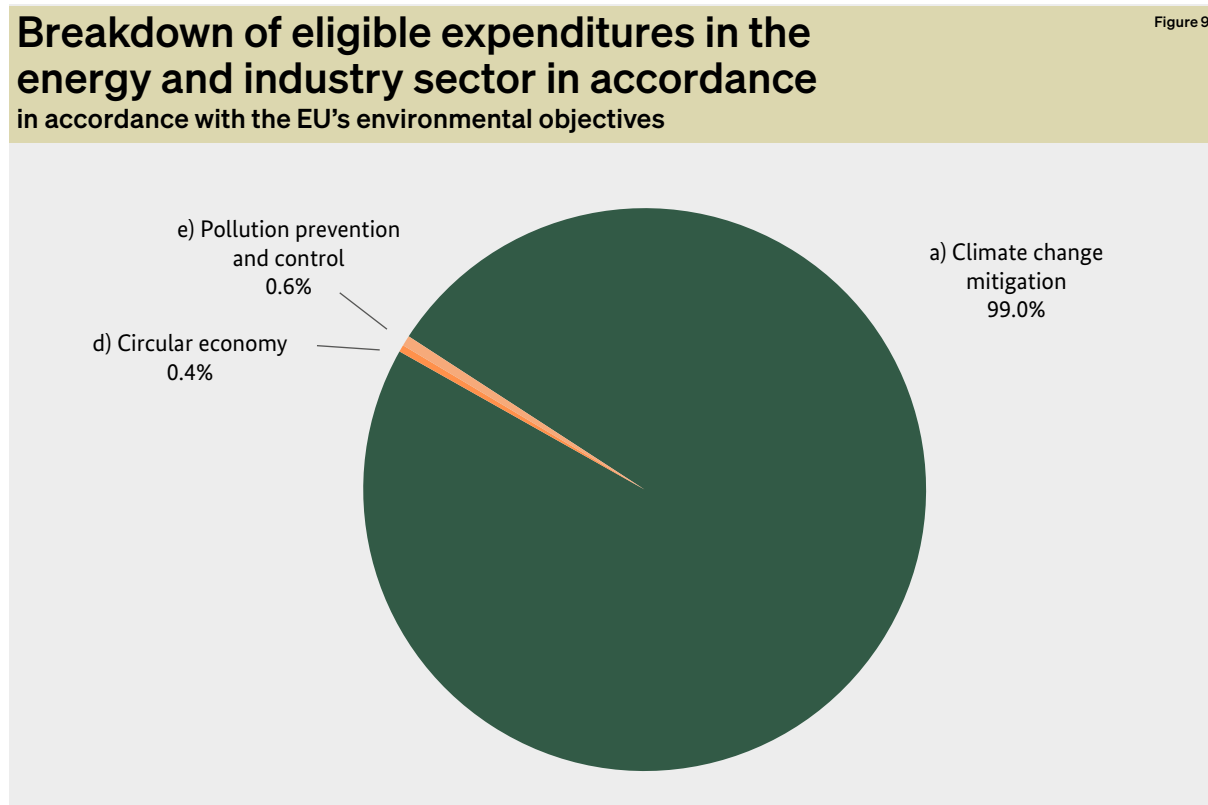
Breakdown of 2022 eligible expenditures in the energy and industry sector by category

Table 9

Energy and industry	Eligible expenditures	Allocated amount	Share of allocation within the sector	Number of budget items
	in €million			
Energy research	564.5	530.1	20.6%	2
Renewable energy	1,396.6	1,311.6	50.9%	3
Energy efficiency	563.6	529.3	20.5%	4
National climate action measures	218.8	205.5	8.0%	1
Energy and industry – Total	2,743.5	2,576.4	100.0%	10

⁵⁵ The final greenhouse gas emission balance 2022 is available at <https://www.umweltbundesamt.de/en/press/pressinformation/detailed-greenhouse-gas-emissions-figures-for-2022>

The eligible expenditures in the energy and industry sector are mapped to the six environmental objectives of the EU taxonomy for environmentally sustainable activities⁵⁶ as follows:



Energy research

Energy research plays a strategic role in energy and economic policies aimed at shaping the energy transition. Funding is focused on technologies and approaches that can significantly improve efficiency, that support the transition to renewable energy sources and that guarantee the security of supply. Research and development into specific technologies is being increased to take account of systemic and cross-system factors (digitalisation of the energy transition, sector coupling).

Renewable energy

The international market ramp-up of green hydrogen is supported by the measures of the Foreign Trade Strategy for Hydrogen (*Wasserstoffstrategie Außenwirtschaft*), among other things through the construction of green hydrogen plants.⁵⁶

To improve framework conditions for shore-side electricity supply in German ports, the federal government has been providing investment subsidies from the Climate and Transformation Fund for programmes at *Länder* level since 2020. Onboard power generation from fossil fuels while ships are berthed results in greenhouse gas emissions and air and noise pollution. Plugging into onshore power grids that receive electricity from renewable sources cuts these emissions by 100%. The federal government, which is responsible for climate and environmental action, supports the *Länder* responsible for port infrastructure with federal financial assistance.

⁵⁷ Case study 22 in the 2023 Green Bond Investor Presentation, slide 57: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf.

⁵⁶ See footnote 7.

By funding renewable energy in the buildings sector, the aim is to support the market penetration of renewable heating technologies and increase their market share.⁵⁸ Solar collector systems, solid biomass combustion systems, efficient heat pumps, deep geothermal systems and particularly innovative technologies for heating and cooling have been funded. The funding is disbursed in part through investment subsidies, particularly for smaller renewable energy heating systems in single-family and two-family houses. The subsidies are administered by the Federal Office for Economic Affairs and Export Control.⁵⁹

Energy efficiency

The funding programme “Federal Funding for Energy and Resource Efficiency in the Economy” (“*Bundesförderung für Energie- und Ressourceneffizienz in der Wirtschaft*”) funds measures to increase energy and resource efficiency and to reduce carbon emissions in industry and businesses.⁶⁰ Among other things this involves (a) the use of waste heat, (b) the conversion of processes and procedures to efficient technologies, and (c) highly efficient facilities for producing process heat from solar collectors, heat pumps and biomass. In addition, the German government finances advisory services on energy consumption and corresponding measures for all end users such as private households, small and medium-sized businesses and authorities. Advice is provided on subjects such as increasing energy efficiency and the use of renewable energy (e.g. ways of saving energy, insulation, modern heating technology) and optimising heating systems.

58 Case study 20 in the 2023 Green Bond Investor Presentation, slide 55: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf.

59 Expenditures for KfW administered programmes to support energy-efficient construction and building renovation (“CO₂-Gebäudesanierungsprogramm”), are used by KfW for its own green bonds and are not taken into account for Green German Federal securities. Since the Federal Funding for Efficient Buildings expenditures are partially refinanced through GRRP funds, they are not taken into account for Green German Federal securities.

60 Case study 21 in the 2023 Green Bond Investor Presentation, slide 56: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf

Funding of battery cell production (industrial production of mobile and stationary energy storage units) supports the development of innovative and sustainable processes for the industrial production of batteries for electric vehicles and other applications, as well as the development of re-use and recycling systems. The projects funded within the scope of two Important Projects of Common European Interest (IPCEIs) will result in the future production of battery cells with lower carbon footprints in Germany, and create the conditions for the large-scale recycling of the raw materials used in the manufacturing of batteries.

The “Urban Energy Redevelopment” (“*Energetische Stadtsanierung*”) funding programme supports comprehensive energy-efficient district redevelopment measures to make building heat supply and municipal supply infrastructures more energy efficient. Funding in the form of subsidies is being provided for the development of integrated district strategies to increase district energy efficiency and for personnel to manage the implementation of the strategies (rehabilitation management).

National climate action measures

The German government supports and initiates climate action projects throughout Germany and contributes significantly to reaching Germany’s climate targets through the National Climate Initiative. The National Climate Initiative’s different funding programmes encompass a broad range of climate action activities. These range from the development of long-term strategies to specific support and financing measures in areas including energy, transport, business/industry and local authorities that will contribute to the reduction of greenhouse gas emissions.

Table 10

Breakdown of 2022 eligible expenditures in the energy and industry sector by category and budget item and by allocation of expenditures to proceeds of the green bond issuances

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	in €million			
					Allocated to Green Bobl (Oct. 2025)	Allocated to Green Bobl (Oct. 2027)	Allocated to Green Bund (Feb. 2033)	Allocated to Green Bund (Aug. 2053)
1. Energy research								
BMWK	0903	683 01	Energy research	521.1	70.9	85.1	177.3	156.0
BMWK	0903	686 08	Living labs for the energy transition	43.4	5.9	7.1	14.8	13.0
				564.5	76.8	92.2	192.1	169.0
2. Renewable energy								
BMWK	0904	896 02	Foreign Trade Strategy for Hydrogen – International cooperation on hydrogen	45.4	6.2	7.4	15.4	13.6
BMWK (KTF)	6092	882 01	Improving framework conditions for shore-to-ship power supply in German ports	12.4	1.7	2.0	4.2	3.7
BMWK (KTF)	6092	893 10	Funding to promote energy efficiency and renewable energy measures in the buildings sector	1,338.8	182.2	218.7	455.5	400.9
				1,396.6	190.1	228.1	475.2	418.2
3. Energy efficiency								
BMWSB (KTF)	6092	661 01	Funding of urban energy redevelopment measures	16.4	2.2	2.7	5.6	4.9
BMWK (KTF)	6092	686 08	Energy efficiency in industry and business	278.7	37.9	45.5	94.8	83.4
BMWK (KTF)	6092	686 14	Providing advice on energy efficiency	166.3	22.6	27.2	56.6	49.8
BMWK (KTF)	6092	893 04	Industrial production for mobile and stationary energy storage units	102.2	13.9	16.7	34.8	30.6
				563.6	76.7	92.0	191.8	168.8
4. National climate action measures								
BMWK (KTF)	6092	686 05	National Climate Initiative and national climate action measures	218.8	29.8	35.7	74.4	65.5
				218.8	29.8	35.7	74.4	65.5
Energy and industry – Total				2,743.5	373.4	448.1	933.5	821.5

3.5 Agriculture, forestry, natural landscapes and biodiversity



The agricultural and forestry sector, more than any other area of the economy, is under direct pressure to adapt to the effects of climate change and to protect natural resources, ecosystems and biodiversity. The sector also plays a key role in climate protection. In 2022, the agricultural sector was responsible for 8% of Germany's total greenhouse gas emissions (CO₂ equivalents).⁶¹ As an important economic sector throughout the country, the agricultural and forestry sector plays a crucial role in achieving Germany's sustainability and climate goals.

Breakdown of 2022 eligible expenditures in the agriculture, forestry, natural landscapes and biodiversity sector by category

Table 11

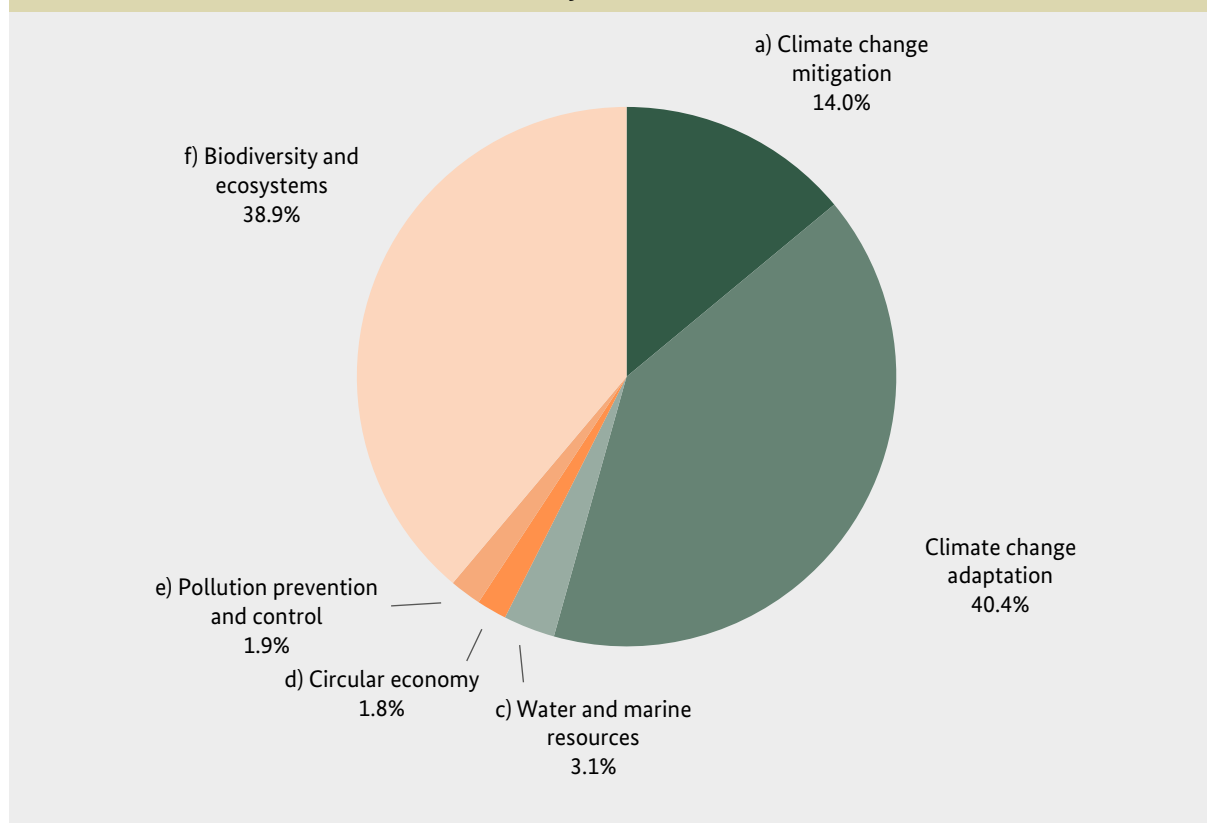
Agriculture, forestry, natural landscapes and biodiversity	Eligible expenditures	Allocated amount	Share of allocation within the sector	Number of budget items
	in €million			
Agriculture	69.2	65.0	9.6%	5
Land use, land-use change and forestry (LULUCF)	201.8	189.5	28.1%	9
Biodiversity and natural landscapes	219.8	206.4	30.6%	6
Coastal and flood protection	227.1	213.3	31.6%	4
Agriculture, forestry, natural landscapes and biodiversity – Total	717.9	674.2	100.0%	24

⁶¹ The final greenhouse gas emission balance 2022 is available at <https://www.umweltbundesamt.de/en/press/pressinformation/detailed-greenhouse-gas-emissions-figures-for-2022>

The eligible expenditures in the agriculture, forestry, natural landscapes and biodiversity sector are mapped to the six environmental objectives of the EU taxonomy for environmentally sustainable activities⁶² as follows:

Breakdown of eligible expenditures in the agriculture, forestry, natural landscapes and biodiversity sector in accordance with the EU's environmental objectives

Figure 10



Agriculture

The objective of the Federal Scheme for Organic Farming (BÖL) is to improve the conditions for organic farming and the organic food industry and to enable the sustainable and balanced growth of this sector.⁶³ The scheme focuses on funding research projects along the entire value chain in the area of organic farming and disseminating the findings in practice. BÖL also includes training and awareness raising measures for producers and consumers. Through its various funding

measures, BÖL is contributing significantly to achieving the German government's goal of having 30% of the country's agricultural land farmed organically by 2030.

The Federal Ministry of Food and Agriculture's Programme to Promote Innovation (*"Programm zur Innovationsförderung"*) encourages businesses and academic institutions to work together to mobilise and bundle their innovative potential. The focus is on applied research and product-oriented research and development. Funding is provided for research and development projects that contribute to the realisation of innovative, sustainable and competitive products, processes and services on the basis of the latest scientific findings. The projects are generally implemented on

⁶² See footnote 7.

⁶³ Case study 23 in the 2023 Green Bond Investor Presentation, slide 58: https://www.deutsche-finanzagentur.de/fileadmin/user_upload/Institutionelle-investoren/green/presentations/Green_Bond_Investor_Presentation_2023.pdf.

the basis of collaborations between companies and research institutions. The funding areas are wide-ranging and have grown steadily since the start of the programme. Funding is provided for projects in thematic areas such as agricultural engineering, plant breeding and plant protection, livestock breeding, husbandry and health, food safety and quality, nutrition, food production as well as aquaculture and fisheries. The programme addresses agricultural cultivation projects aimed at improving sustainability and resource efficiency.

Since 2019, the “Federal Programme to Enhance Energy Efficiency and Reduce Carbon Emissions in Agriculture and Horticulture” (*“Bundesprogramm zur Steigerung der Energieeffizienz und CO₂-Einsparung in Landwirtschaft und Gartenbau”*) has been part of the Federal Ministry of Food and Agriculture’s climate action package to support the federal government’s 2030 Climate Action Plan. The goal is to significantly reduce carbon emissions from stationary and mobile energy use in agriculture and horticulture. That is why, as well as funding advisory services and energy saving investments, the programme also provides funding in the areas of renewable energy production and the use of waste heat in agricultural companies and in the area of mobile agricultural machinery and equipment.

Land use, land-use change and forestry (LULUCF)

The German government’s funding programmes as well as the joint task of the Federation and *Länder* to improve agricultural structures and coastal protection (*“Gemeinschaftsaufgabe Verbesserung der Agrarstruktur und des Küstenschutzes”* (GAK)) are aimed at supporting sustainable and resource-conserving agriculture and forestry and taking environmental and climate needs, such as the protection of natural habitats, into even greater account.

The Federation and *Länder* support the development of sustainable close-to-nature forest management, e.g. to mitigate the effects of extreme weather events, which are becoming more prevalent as a result of climate change, as well as appropriate preventive measures

(especially the development of resilient forests). Since 2013, the Forest Climate Fund (*“Waldklimafonds”*, WKF) has supported research, development and demonstration projects as well as dialogue and knowledge transfer between research and practice in matters relating to climate action in forests and the adaptation of forests to climate change.

The Federal Ministry of Food and Agriculture’s “Renewable Resources” programme funds research, development and demonstration measures in the area of renewable resources. The objectives of the programme include the efficient and environmentally friendly use of resources including emissions avoidance or sequestration of greenhouse gases and protecting biodiversity.

Biodiversity and natural landscapes

The federal government provides funding for various programmes dedicated to the conservation of biodiversity and the protection of endangered species.

The programme “Improvement of Agricultural Structures and Coastal Protection” (GAK), which is co-financed by the federal government and *Länder*, funds environmentally friendly land management geared to market and local conditions, including contractual nature conservation and landscape management. This includes particularly sustainable practices in arable farming and the cultivation of annual specialised crops, permanent grasslands, permanent crops and large orchards.

Since 2022 the Federal Nature Conservation Fund (*“Bundesnaturschutzfonds”*)⁶⁴ has bundled various programmes aimed at protecting biodiversity and natural heritage. These include the “Federal Biological Diversity Programme” (*“Bundesprogramm Biologische Vielfalt”*), chance.natur, the Wilderness Fund (*“Wildnisfonds”*), the “Blaues Band”, which funds measures to restore flood plains along federal waterways, as well as the “Species Protection Programme” (*“Artenhilfsprogramm”*) and funding for mudflat information centres.

64 <https://www.bfn.de/en/topic/federal-nature-conservation-fund>

The “Federal Biological Diversity Programme” is the central funding programme aimed at improving biodiversity. The funded measures include insect conservation projects particularly in the areas of insect conservation in cities (“Masterplan Stadtnatur”) and in protected areas (especially biosphere reserves) as well as supporting projects to increase and disseminate knowledge about insects. The programme “chance.natur” promotes the establishment and preservation of natural areas of national significance. Through the Wilderness Fund, suitable areas of land such as forests and moors, as well as their usage rights, are purchased and placed under protection. In this way the government aims to reach its goal of maintaining 2% of Germany’s total area as wilderness.

Investments to restore the ecological integrity of rivers aim to promote ecological enhancement along federal waterways.

Coastal and flood protection

The main purpose of coastal and flood protection measures is to protect the population. Following the IPCC’s Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC), higher wind speeds and an increase in extreme waves, combined with the rise in sea levels, are exacerbating extreme weather conditions and dangers in coastal regions. Besides being a threat to humans, floods cause the destruction of natural landscapes, agricultural land, wildlife and infrastructure. As a programme financed jointly by the federal government and the *Länder*, the GAK programme includes numerous funding options to implement a wide range of coastal defence and flood protection measures. The GAK funding measures are implemented by the *Länder*. The federal government provides 70% of the financing for coastal and 60% of the financing for flood protection measures.

Table 12

Breakdown of 2022 eligible expenditures in the agriculture, forestry, natural landscapes and biodiversity sector by category and budget item and by allocation of expenditures to proceeds of the green bond issuances

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bobl (Oct. 2025)	Allocated to Green Bobl (Oct. 2027)	Allocated to Green Bund (Feb. 2033)	Allocated to Green Bund (Aug. 2053)
in €million								
1. Agriculture								
BMEL	1005	686 43	Subsidies to fund organic farming (BÖL)	12.4	1.7	2.0	4.2	3.7
BMEL	1005	686 31 893 31	Funding of innovation in the area of food, agriculture and health-related consumer protection	46.5	6.3	7.6	15.8	13.9
BMEL (KTF)	6092	686 22 893 07	Subsidies to fund measures for improving energy efficiency in agriculture and horticulture Investment subsidies to fund measures for improving energy efficiency in agriculture and horticulture	10.3	1.4	1.7	3.5	3.1
				69.2	9.4	11.3	23.5	20.7
2. Land use, land-use change and forestry (LULUCF)								
BMEL	1005	686 11	Subsidies to fund research, development and demonstration projects in the area of renewable resources and to fund national sustainable forestry projects	44.9	6.1	7.3	15.3	13.4
		893 11	Subsidies to fund research, development and demonstration projects in the area of renewable resources (investments)					
		686 15	Subsidies to fund the sustainable use of wood					
	1006	687 06	International sustainable forest management					
BMEL	Annex 1 to 1003 (1095)	632 41 882 41	Grants to fund forestry measures (excluding investments) Grants to fund forestry measures (investments)	31.8	4.3	5.2	10.8	9.5
BMEL	Annex 1 to 1003 (1095)	632 42 882 42	Grants to fund measures that combat the effects of extreme weather events in forests (excluding investments) Grants to fund measures that combat the effects of extreme weather events in forests (investments)	99.3	13.5	16.2	33.8	29.7
BMEL+BMUV (KTF)	6092	686 06	Forest Climate Fund	25.8	3.5	4.2	8.8	7.7
				201.8	27.5	33.0	68.7	60.4

Table 12: continuation

Breakdown of 2022 eligible expenditures in the agriculture, forestry, natural landscapes and biodiversity sector by category and budget item and by allocation of expenditures to proceeds of the green bond issuances

Responsible ministry	Budget chapter	Budget item	Name of the budget item	Eligible expenditures	Allocated to Green Bobl (Oct. 2025)	Allocated to Green Bobl (Oct. 2027)	Allocated to Green Bund (Feb. 2023)	Allocated to Green Bund (Aug. 2023)
in €million								
3. Biodiversity and natural landscapes								
BMEL	Annex 1 to 1003 (1095)	632 33	Grants for funding environmentally friendly land management geared to market and local conditions, including contractual nature conservation and landscape management (MSUL)	98.0	13.3	16.0	33.3	29.3
		882 31	Grants for funding environmentally friendly land management geared to market and local conditions, including contractual nature conservation and landscape management (MSUL)					
BMEL	Annex 1 to 1003 (1095)	632 97	Federal share of financing for the special framework programme for insect protection measures	54.8	7.5	9.0	18.6	16.4
		882 97	Federal share of financing for the special framework programme for insect protection measures (investments)					
BMDV	1203	780 05	Restoration of ecological continuity and measures for ecological development along federal waterways	6.4	0.9	1.0	2.2	1.9
BMUV	1604	894 02	Federal Nature Conservation Fund	60.6	8.2	9.9	20.6	18.1
				219.8	29.9	35.9	74.8	65.8
4. Coastal and flood protection								
BMEL	Annex 1 to 1003 (1095)	882 15	Grants to fund flood protection facilities, the renaturation of dykes, torrent control and the renaturation of water bodies	76.3	10.4	12.5	26.0	22.8
BMEL	Annex 1 to 1003 (1095)	882 61	Grants to fund coastal protection measures	73.1	9.9	11.9	24.9	21.9
BMEL	Annex 1 to 1003 (1095)	882 81	Grants to fund coastal protection measures to counter the effects of climate change	23.3	3.2	3.8	7.9	7.0
BMEL	Annex 1 to 1003 (1095)	882 82	Federal share of funding for the special framework programme for preventative flood protection measures	54.4	7.4	8.9	18.5	16.3
				227.1	30.9	37.1	77.3	68.0
Agriculture, forestry, natural landscapes and biodiversity – Total				717.9	97.7	117.2	244.3	215.0

Annex: Third-party verification



Limited assurance report of the independent auditor regarding the eligible green expenditures in the “Green Bond Allocation Report 2023” of the Federal Ministry of Finance

To Federal Ministry of Finance (Bundesministerium der Finanzen), Berlin/Germany, representing the Federal Government of Germany.

Engagement

We have performed a limited assurance engagement on the Green Bond Allocation Report for the reporting period from 1 January 2023 to 31 December 2023 (further “Green Bond Allocation Report 2023”) for

- Germany’s 5-year Green Federal note (further “Green Bobl (Oct 2025)”), tapped by EUR 1.5bn on 24 January 2023 and tapped by EUR 1bn on 7 June 2023 to the volume of EUR 7.5bn.
- Germany’s 5-year Green Federal note (further “Green Bobl (Oct 2027)”), tapped by EUR 1.5bn on 21 March 2023 and tapped by EUR 1.5bn on 30 August 2023 to the volume of EUR 8bn.
- Germany’s 10-year Green Federal bond (further “Green Bund (Feb 2033)”), issued on 25 April 2023 with an issuance volume of EUR 5.25bn and tapped by EUR 1bn on 5 July 2023 to the volume of EUR 6.25bn.
- Germany’s 30-year Green Federal bond (further “Green Bund (Aug 2053)”), issued on 13 June 2023 with an issuance volume of EUR 4.5bn and tapped by EUR 1bn on 31 October 2023 to the volume of EUR 5.5bn.

The Green Bond Allocation Report 2023 was prepared on the basis of the 2022 Federal budget and a list of hereof positions of eligible green expenditures as defined in Germany’s Green Bond Framework as of 24 August 2020 and validated by the Inter-Ministerial Working Group for the period from 1 January 2022 to 31 December 2022.

Our limited assurance engagement was bounded to the accuracy of the Green Bond Allocation Report 2023 with regard to the proportional allocation of the proceeds from the Green Bobl (Oct 2025), Green Bobl (Oct 2027), Green Bund (Feb 2033) and Green Bund (Aug 2053) to the eligible green expenditures from the previous year in accordance with the process for expenditure evaluation and selection as well as requirements for allocation reporting set out in Germany’s Green Bond Framework.

Our engagement has not covered whether Germany's Green Bond Framework has met the criteria of the Green Bond Principles as issued by the International Capital Market Association (ICMA). Moreover, our engagement did not include any checks of compliance of Germany's Green Bond Framework with important elements of the EU Green Bond Standard. We did not validate whether the expenditures used for the allocation of proceeds in the Green Bond Allocation Report 2023 are eligible green expenditures, either. Our engagement did not cover any other aspects than the proportional allocation and whether the eligible green expenditures selected by the Core Green Bond Team were listed in the 2022 Federal budget. Further our engagement did not cover any external sources of documentation or expert opinions quoted in the Green Bond Allocation Report 2023.

Responsibilities of the Federal Ministry of Finance

The Federal Ministry of Finance, Division VII C2, is responsible for the preparation of the Green Bond Allocation Report 2023 on the basis of the 2022 Federal budget and a list of hereof positions of eligible green expenditures for the period from 1. January 2022 to 31. December 2022 and in accordance with Green Bond Framework of 24. August 2020. The Green Bond Allocation Report 2023 was compiled by the Federal Government's Core Green Bond Team, comprising the Federal Ministry of Finance (lead), the Federal Ministry for the Environment, Nature Conversation, Nuclear Safety and Consumer Protection and the Federal Republic of Germany – Finance Agency, on the basis of information provided and validated by the Inter-Ministerial Working Group.

The responsibilities of the Core Green Bond Team include the selection and application of appropriate reporting methods and making assumptions and estimates about individual disclosures in the Green Bond Allocation Report 2023, that are reasonable in the circumstances. Furthermore, the Core Green Bond Team is responsible for such internal control as they consider necessary to enable the preparation of the Green Bond Allocation Report 2023 that is free from material misstatement, whether due to fraud or error.

Independence and Quality Assurance of the Assurance Practitioner's firm

We have complied with the independence and quality assurance requirements set out in the national legal provisions and professional pronouncements, in particular the Professional Code for German Public Auditors and Chartered Accountants (in Germany) and the IDW Standard on Quality Management 1: Requirements for Quality Management in Audit Firms (IDW QMS 1 (09.2022)).

Responsibility of the independent auditor

Our responsibility is to express a limited assurance opinion on the Green Bond Allocation Report 2023 based upon the procedures we have performed and the evidence we have obtained.

We conducted our assurance engagement in accordance with International Standard on Assurance Engagements (ISAE) 3000 (Revised): „Assurance Engagements other than Audits or Reviews of Historical Financial Information“ issued by the International Auditing and Assurance Standards Board (IAASB). This standard requires that we plan and perform the assurance engagement to obtain limited assurance about whether any matters have come to our attention that cause us to believe that the Green Bond Allocation Report 2023 has not been prepared, in all material respects, in accordance with the 2022 Federal budget and a list of hereof positions of eligible green expenditures as well as that the allocation has not been done on a proportional basis or that it has not been done in accordance with the process for expenditure evaluation and selection as well as the requirements for allocation reporting set out in Germany's Green Bond Framework as of 24 August 2020.

In a limited assurance engagement, the procedures performed are less extensive than in a reasonable assurance engagement, and accordingly, a substantially lower level of assurance is obtained. The selection of the assurance procedures is subject to the professional judgment of the assurance practitioner.

In the course of our assurance engagement we have, among other things, performed the following assurance procedures and other activities:

- Inquiries of personnel of Division VII C 2 at the Federal Ministry of Finance responsible for the disclosures of the eligible expenditures in order to gain an understanding of the process of preparing the Green Bond Allocation Report 2023 based on the 2022 Federal budget.
- Interviews with relevant staff of the Core Green Bond Team responsible for providing and consolidating the data and information, as well as carrying out control procedures on the data and information.
- Evaluation of selected internal and external documents.
- Reviewing the consistency of eligible Green Bond categories declared by Germany's Green Bond Framework as of 24 August 2020 of the Federal Ministry of Finance.
- Assessing whether Green Bobl (Oct 2025), Green Bobl (Oct 2027), Green Bund (Feb 2033) and Green Bund (Aug 2053) received proportional allocation of the 2022 final eligible green expenditures in accordance with the 2022 Federal budget and a list of hereof positions of eligible green expenditures.

In our opinion, we obtained sufficient and appropriate evidence for reaching a conclusion for the assurance engagement.

Auditor's Opinion

Based on the assurance procedures performed and the evidence obtained, nothing has come to our attention that causes us to believe that the Green Bond Allocation Report 2023, for the Green Bobl (Oct 2025), Green Bobl (Oct 2027), Green Bund (Feb 2033) and Green Bund (Aug 2053) as a whole is not prepared, in all material respects, on the basis of the 2022 Federal budget and a list of hereof positions of eligible green expenditures as well as that the allocation has not been done on a proportional basis or in accordance with the process for expenditure evaluation and selection as well as the requirements for allocation reporting set out in Germany's Green Bond Framework as of 14 August 2020.

Our opinion does not include the aspects excluded in the section "Engagement".

Specific purpose

Without modifying our opinion, we would like to draw attention that the Green Bond Allocation Report 2023 was prepared to report on the allocation of eligible green expenditures to the Green Bobl (Oct 2025), the Green Bobl (Oct 2027), the Green Bund (Feb 2033) and Green Bund (Aug 2053). Therefore, the Green Bond Allocation Report 2023 may not be suitable for another purpose.

Restriction of Use

This assurance report is solely addressed to the Federal Ministry of Finance representing the Federal Government of Germany.

This report is not intended to be used by third parties as a basis for making (financial) decisions. We issue this report based on the terms and conditions of the framework agreement agreed with the Federal Government, represented by the Federal Ministry of Finance, on 10 November 2023, wherein the liability is limited. We are liable solely to the Federal Government of Germany. We assume no responsibility with regard to any third parties.

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