

# Investor Briefing

## NRW Sustainability Bond #6

Analysis of the Sustainability Bond #6  
issued in 2019 by the German State of  
North Rhine-Westphalia (NRW)

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This report is based on the results of a study conducted on behalf of the State Government of North Rhine-Westphalia. The authors are responsible for the content.

*Cited as:*

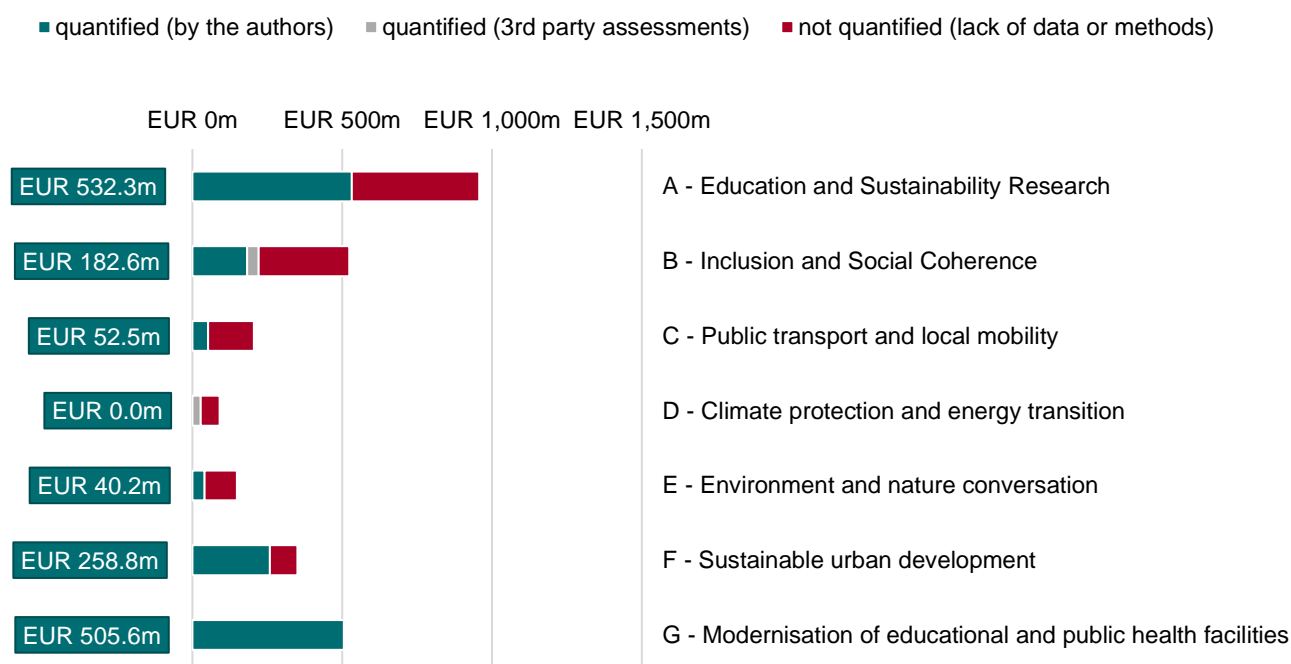
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## Overview

The Wuppertal Institute conducted an impact analysis of the NRW Sustainability Bond #6 (2019) on behalf of the State Government of North Rhine-Westphalia (NRW). The most recent bond has a volume of EUR 2.5 bn (EUR 2.8 bn were allocated), terms of 10 or 20 years and consists of 62 eligible projects from the State's 2019 general budget (sustainable value-added was confirmed in a second party opinion by ISS ESG<sup>1</sup>). This report analyses the contribution of the bond to climate mitigation, ecological and social impacts. It also includes information on the impacts of the previous five bonds (NRW Sustainability Bond #1 to #5). The impact report at hand is based on data that was collected until April 2020 and is published in advance of the full report. Any changes in data will be documented later in the full report.

Figure 1 shows the project categories in the bond and quantifies the shares that could be directly associated with either environmental or social impacts. 56% or EUR 1.56 bn of the overall investments (EUR 2.79 bn) could be directly quantified in the paper at hand. Additional EUR 66m (2%) has been assessed by third parties and is also reported in this briefing. The remaining EUR 1.14 bn (41%) could either not be quantified due to lack of data or are not quantifiable at all within existing scientific frameworks.

**Figure 1: Share of quantified investments in the Sustainability Bond #6**



source: own calculation based on methods and data depicted in the full report

Table 10 in the Annex lists all projects in the bond according to the final volume in the State's budget and the volume in the bond.

<sup>1</sup> see [https://www.nachhaltigkeit.nrw.de/fileadmin/download/Nachhaltigkeitsanleihe/191031\\_LandNRW\\_SPO\\_final.pdf](https://www.nachhaltigkeit.nrw.de/fileadmin/download/Nachhaltigkeitsanleihe/191031_LandNRW_SPO_final.pdf)

## Co-Benefits of projects in the bond

Many projects in the bond help to mitigate both green and social issues. While the refurbishment of a university clinic is intended to reduce its energy demand, it will in many cases also improve the health care standard provided by the hospital. The same is true for investments in public infrastructures (e.g. enabling broadband connections or social tickets), where measures lead to improvements in more than one area. These types of effects are called co-impact and are often difficult to quantify. The Wuppertal Institute plans to look deeper into this kind of effects in the future and for up-coming NRW Sustainability Bonds.

## Further Information: NRW Sustainability Strategy

The NRW Sustainability Bond #6 is part of the *Sustainability Strategy NRW*, which aims to improve the sustainable development of the whole State of NRW.

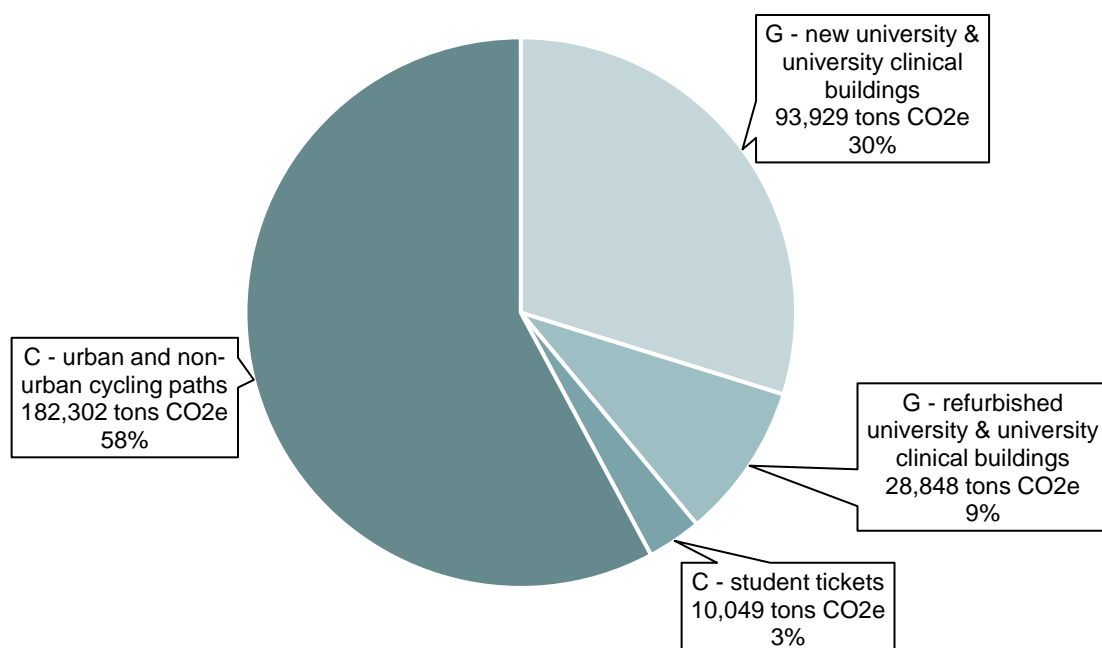
Regular updates of the results are also presented on a dedicated website (<http://www.nachhaltigkeitsindikatoren.nrw.de/sdgs>). The Sustainability Strategy NRW (including the indicator report) is going to be updated in the future, aligning the methodology more closely with the federal Sustainability Strategy of 2017.

## Environmental Impacts

### Quantified GHG Savings in NRW Sustainability Bond #6

The estimated avoided GHG emissions in the bond can be traced back to investments of EUR 344m for 7 different measures. The measures are part of investments in category C (student tickets, urban cycle paths and non-urban fast cycle paths) and G (new and refurbished university and university clinical buildings). As a result, the measures are expected to save ca. 315,028 tons of CO<sub>2</sub> equivalents (CO<sub>2</sub>e) over their lifetime (see Figure 2).

Figure 2: GHG Savings (over lifetime) in the NRW Sustainability Bond #6



source: own calculation based on methods and data depicted in the full report

Results for each measure range from 72 tons CO<sub>2</sub>e per year to 10,049 tons per year (see Table 1). All of these measures, with exception of student tickets, are likely to save emissions beyond the term of the Sustainability Bond.

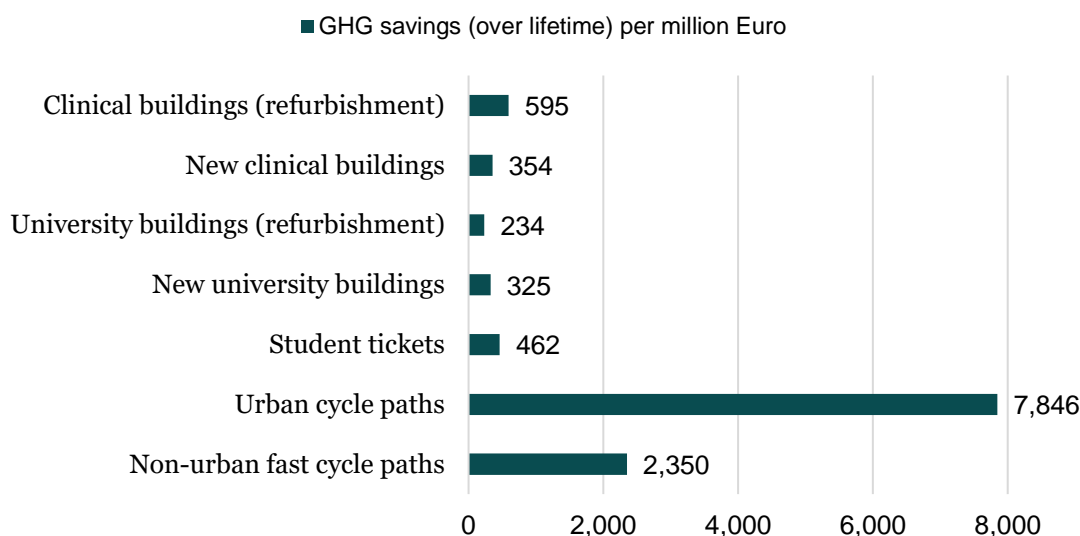
**Table 1: GHG savings of measures in categories C and G**

Measure	GHG savings per year	GHG savings over Lifetime	average Lifetime (assumption)
	tons CO <sub>2</sub> e per year	tons CO <sub>2</sub> e in total	years
Non-urban fast cycle paths	846	25,376	30
Urban cycle paths	5,231	156,926	30
Student tickets	10,049	10,049	1
New university buildings	403	20,147	50
University buildings (refurbishment)	72	1,435	20
New university clinical buildings	1,118	73,782	66
University clinical buildings (refurbishment)	1,371	27,413	20

source: own calculation based on methods and data depicted in the full report

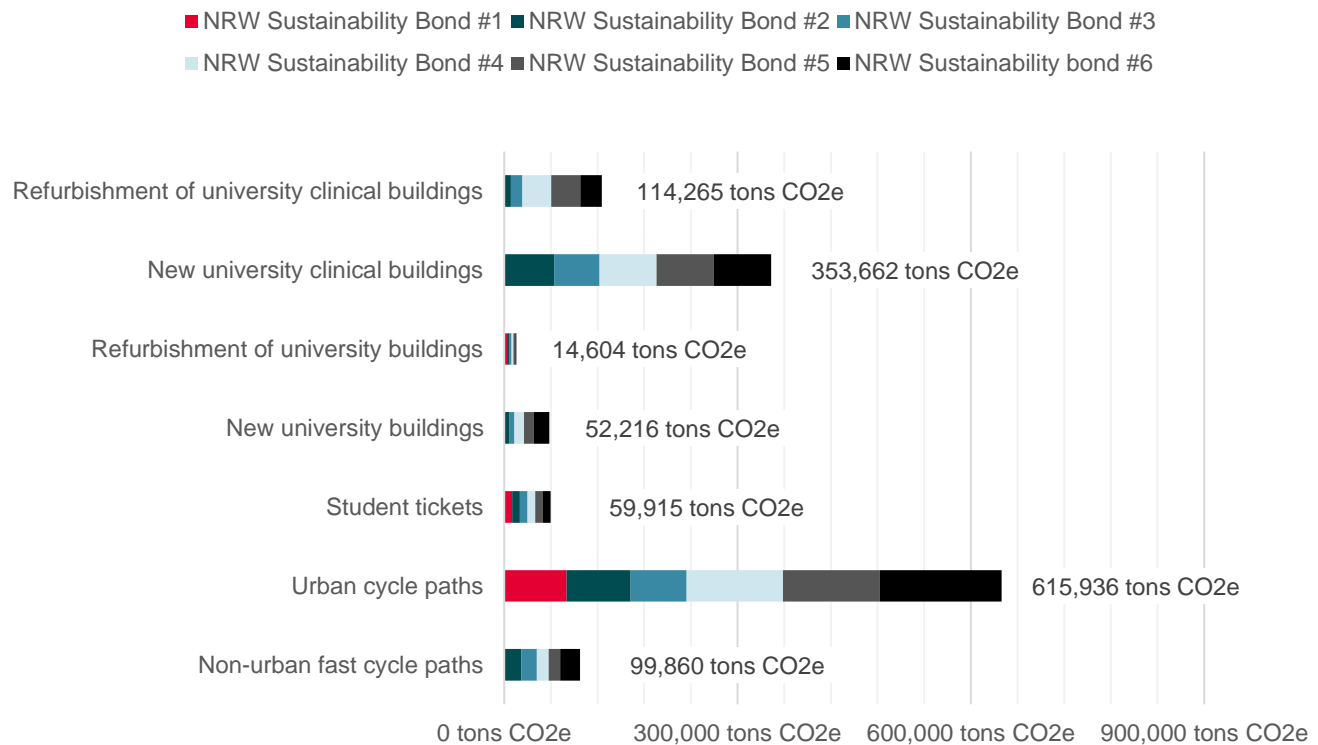
Figure 3 also depicts the normalised efficiency of the different measures for climate protection:

**Figure 3: Efficiency of climate protection measures for quantified investments**



source: own calculation based on methods and data depicted in this report

All of the quantified categories for climate protection in the Sustainability Bond #6 were already part of the Sustainability Bonds #5 (2019), #4 (2018), #3 (2017), #2 (2016) and #1 (2015). They can therefore be aggregated to a six-year portfolio (see Figure 4). This was not possible for singular measures like solar thermal energy generation (Bond #3) or co-generation of heat and power (Bond #2). In total, EUR 1,287m were invested over six years (2014-2019) that help to induce GHG savings of over 1,310,457 tons CO<sub>2</sub>e over the assumed lifetime of measures (see Figure 4).

**Figure 4: GHG savings over lifetime of projects from 2014 to 2019 in the portfolio**

source: own calculation based on methods and data depicted in this report

### Additional environmental impacts for NRW Sustainability Bonds #1 to #6 (3<sup>rd</sup> party assessments)

The NRW Sustainability Bonds also include ca. EUR 66m investments into other projects that improve ecological developments over the course of six years (2014-2019). These projects not only help to mitigate GHG emissions by e.g. improving energy efficiency. They also contain measures to increase resource efficiency or waste avoidance in companies. The State's funding within the Sustainability Bond facilitates investments from other actors, thus creating leverage for joint efforts to reduce environmental impacts in these areas.

The European Regional Development Fund (ERDF) aims to correct imbalances between the regions of the European Union, but it also channels resources towards a low-carbon economy in its priority axis 3. The agencies reporting in this category are the "Effizienz Agentur NRW" (efa+) and "Ökoprofit", which both provide consulting services for companies.

Although a direct attribution of the effects to the investments in the bond is not possible, they are reported here in form of third-party assessments. The State's investments as well as investments by other actors are shown in Table 2. They contribute to savings of energy, material and GHG emissions over the course of several years. Because the 2019 results for ERDF were not available at the time of the impact report, its investments and effects still refer to the timeframe from 2014 until 2018.

**Table 2: Third party assessments and quantified effects in category D**

Type	Funding in NRW Sustainability Bond	Investments outside the Sustainability Bond	Environmental Savings*
	#1 to #6	for budget years 2014-2019	
Effizienz Agentur NRW efa+ (as part of resource efficient economy)	circa EUR 30m	EUR 63.5m in the scope of resource efficiency (validated)	79,853 tons of CO2e
			17,891 tons of material resources
			560,266 m³ of water
		EUR 578.2m in the scope of financing (validated)	183,210 tons of CO2e
			33,169 tons of material resources
			217,329 m³ of water
Ökoprofit NRW (as part of resource efficient economy)	circa EUR 1.5m	EUR 72.2m	102,901 tons of CO2e
			10,791 tons of waste
			511,630 m³ of water
ERDF (2014-2020) (priority axis 3 on CO2 reduction)	circa EUR 34.9m** (ca. 24% of overall funding)	only for budget years 2014-2018 (no report for 2019 as of yet)	
		circa EUR 114m	675,720 tons of CO2e (estimates until 2018)
<i>*Different methods were used to calculate the ecological impacts of the projects. The results are not summable. These numbers refer to the most recent reporting in the projects (including retrospective adjustment of data).</i>			
<i>** previous reports showed the sum of all ERDF funding in the context of NRW Sustainability Bonds; this value refers to the estimated share for priority axis 3 only</i>			

source: correspondence with related agencies, and the ERDF implementation report for NRW (Ministerium für Wirtschaft, Innovation, Digitalisierung und Energie des Landes Nordrhein-Westfalen, 2019)

In regard to the GHG savings from funding in the ERDF, it can be estimated that savings of approximately 13,000 tons of CO<sub>2</sub>-equivalents can be attributed to the NRW Sustainability Bond #6 (EUR 5.9m out of EUR 24.5m). This estimate is based on the fact that circa 675,700 tons of CO<sub>2</sub>-equivalents are anticipated until 2018 with an overall funding of EUR 309m so far (including EU funds).

## Ecological Impacts

While methods for GHG emission accounting are well established, only few ecological impacts can be monitored and quantified in a manner that is consistent with effects on climate mitigation. Nonetheless, the following impact-indicators could be derived that can be directly associated with investments in the State's budget.

The current findings and methodology for ecological impacts are described in the full report.

## Sustainable Land Use

Of the total volume of EUR 148.3m in category E, EUR 28.3m (of which EUR 21.6m are part of the EAFRD) can be attributed to sustainable land use such as promoting diverse cultures in agriculture, development of protective stripes, nature conservation of grasslands, organic farming or compensating farmers when faced with environmental restrictions (e.g. in mountain areas).

Table 3 shows the results for the indicator Sustainable Land Use. As the method for calculations has been more closely aligned with funding allocation and monitored results, promoted areas per EUR 1m are lower compared to previous reports.

**Table 3: Indicator „Sustainable Land Use” in NRW Sustainability Bond #6**

Subcategory	Investment volume (2019)	Area supported per year (2019) (estimated)
Responsible Agriculture	EUR 6.7m	13,015 ha
EAFRD	EUR 21.6m	41,983 ha
<b>in TOTAL</b>	<b>EUR 28.3m</b>	<b>54,998 ha</b>

source: own calculation based on Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes NRW (2019b)

## Animal-friendly Husbandry

In addition to previous reports, EAFRD funding can now also be attributed to animal-friendly husbandry. Table 4 shows the results in this category, referring to attributed effects in the EAFRD for animals in summer grazing and rearing on straw.

**Table 4: Indicator „Animals in animal-friendly husbandry” in NRW Sustainability Bond #6**

Subcategory	Investment volume (2019)	Number of Animals (2019) (estimated)
<b>EAFRD</b>	<b>EUR 4.4m</b>	<b>60,300</b>

source: own calculation based on Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes NRW (2019b)

## Biological Stations

The tasks of Biological Stations include the protection and care of the flora, fauna and landscape as well as nature conservation education and the associated public relations work. Out of a total investment volume of EUR 32.2m in the bond category “protection of nature”, EUR 9.3m can be allocated to these stations (Ministry for the Environment, Agriculture, Nature and Consumer Protection of North Rhine-Westphalia, 2019). This funding is mainly required to maintain 39 such stations throughout NRW (<https://www.biostationen-nrw.com>, 2020).

**Table 5: Indicator „Number of Biological Stations” in NRW Sustainability Bond #6**

Subcategory	Investment volume (2019)	Number of Biological Stations
<b>Protection of Nature</b>	<b>EUR 9.3m</b>	<b>39</b>

source: own attribution based on Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes NRW (2019a)

## Social Impacts

Only few social projects in the bond can be directly associated with quantifiable effects because required data is not reported or there is a lack of appropriate methods. Many projects are therefore not part of the current impact assessment, in particular projects in the area of education, inclusion and social cohesion. Social tickets for example clearly help poor people in their daily mobility, but the number of beneficiaries has not been collected since 2015 (about 300,000 people back then<sup>2</sup>). Other examples for indirect social impacts from funding in the bond are the support of 54 municipal integration centres or the exemption from parental contributions for the last year of day-care for children. The Wuppertal Institut is continuously expanding the range of social impacts reported in its impact reports. The current findings as well as the first consistent methodology for social impact reporting are integrated into the full report.

### Education and Sustainability Research (Category A)

The enlargement of universities is part of the State's funding into education and sustainability research (bond category A as part of e.g. the Bund-Länder-Covenant for the expansion of universities). Out of EUR 957.2m, 90% or EUR 858.9m were invested to finance additional student capacities (e.g. 36,000 first-year students), reward universities for graduates or to reduce the number of dropouts. Other investments in this bond category facilitate training of geriatric nurses or teachers for special education.

Also included in the bond are funds to finance 14 research-groups in NRW as part of the "return programme for highly qualified researchers from abroad". Within the "EU School programme", fruits, vegetables and milk was provided to a minimum of 10,700 primary school pupils. Table 6 lists the results in all sub-categories and shows the share of funding attributed to the NRW Sustainability Bond.

**Table 6: Allocation of funding in category A and quantification of effects**

Category	Share	volume (2019)	Effect
Other funding in category A (e.g. for best-in-class universities)	36%	EUR 347.6m	<i>no quantification</i>
Funding of graduates	26%	EUR 248.0m	62,000 graduates
Funding of first-year students in NRW	12%	EUR 117.7m	36,000 students
Funding of the professional education of geriatric nurses	9%	EUR 86.6m	21,500 nurses
Other measures for the enlargement of universities	8%	EUR 77.3m	<i>no quantification</i>
Funding of master studies	6%	EUR 52.9m	10,600 students
Training facilities for the education of special education teachers	2%	EUR 21.2m	2,300 study places
Funding of the return for highly qualified young researchers	1%	EUR 3.6m	14 research groups
EU School program	<1%	EUR 2.3m	10,700 pupils
<b>in TOTAL</b>	<b>100%</b>	<b>EUR 957.2m</b>	<b>-</b>

source: own calculations based on methods and data depicted in the full report  
(number of bachelor graduates on the basis of 2018 as new statistics were not available at the time of publication)

<sup>2</sup> see <https://www.landtag.nrw.de/Dokumentenservice/portal/WWW/dokumentenarchiv/Dokument/MMD17-717.pdf>

## Inclusion and Social Coherence (Category B)

The NRW Sustainability Bond #6 investments dedicated to *Inclusion and Social Coherence* total EUR 528.6m. Some of this funding in category B was used to create new jobs for people with disabilities, funding day-care centres, qualification of young people with individual needs (esp. young refugees) or additional social workers in schools.

By relating the available funding for these four measures, it can be quantified that the Sustainability Bond NRW #6 provides at least 245 new jobs for people with disabilities (newly created jobs), helps to qualify 13,700 refugees and creates 730 jobs for social workers in NRW (costs for material and salary per year). In addition, 1,700 plusKITAS are funded with EUR 45.0m to improve educational opportunities for children from low-income families, with a migration background or from a relatively uneducated social environment. All four projects also show how investments into social development can also lead to an improvement of economic indicators (job creation and qualification). Table 7 shows the allocated investments of the Bond and their estimated effects in this category.

**Table 7: Social Impacts for Integration and Social Cohesion**

Inclusion & Social Cohesion	Sustainability Bond NRW #6	Type of quantification	Social Impact
<b>Occupational integration of people with disabilities</b>	EUR 4.9m	costs	<b>job creation:</b> ca. 245 new jobs
<b>plusKITA</b>	EUR 45.0m	reported effects	<b>Day care centre funding:</b> 1,700 day care centres
<b>Start in education and work</b>	EUR 50.0m	anticipated effects	<b>qualification:</b> 13,700 young people
<b>Social School Work</b>	EUR 47.3m	costs	<b>job funding:</b> ca. 730 jobs

source: own calculation based on reported data and calculated lump sums for scaling

## Broadband Expansion

Broadband connections (download rates of 50 Mbits/s and more) improve social and economic access by households, institutions and businesses. They also facilitate opportunities for a greener economy by reducing work-related traffic with the help of home-office solutions or the settlement of companies in more rural areas. 74% of the investments in the bond's category of urban development or EUR 258.8m are attributed to this purpose.

Quantifying the effect of funding for broadband connections is rather difficult, as the costs of an access point increase exponentially with higher penetrations rates. Based on NRW broadband expansions in the past (from an interactive website by the Federal Ministry of Transport and Digital Infrastructure<sup>3</sup>), about EUR 2,000 can be estimated as costs per access point on average. The investment in that bond category therefore represent about 129,400 new broadband connections in NRW.

<sup>3</sup> see <https://www.bmvi.de/SharedDocs/DE/Artikel/DG/breitbandatlas/breitbandatlas.html>

## Social impact indicators for the Sustainability Bond NRW #6

Table 8 summarizes the scalable social impact indicators for the Sustainability Bond NRW #6, which are mainly based on fix lump sums in the different State programmes (e.g. such as re-fundable costs for social workers)

**Table 8: Social Impact Indicators for Sustainability Bond NRW #6**

Impact indicator	Scaling Factor [EUR]	Metric	Project
First-year students	18,000 per student	lump sum	Expansion of universities
Graduates	4,000 per graduate	lump sum	Expansion of universities
Master student place	10,000 per place	lump sum	Expansion of universities
Geriatric nurses	2,870 per student	lump sum	Education of geriatric nurses
Jobs for disabled people	20,000 per job created	max. funding	Integration of people with disabilities
Jobs for school workers	65,000 per job	lump sum	School social work
Broadband connections	2,000 per access point	sample	Broadband expansion
Day-care centres	26,000 per centre	lump sum	plusKITA
Support of young people	3,800 per participant	lump sum	Start in education and work

source: own calculation based on methods and data depicted in the full report

## Additional social impacts for NRW Sustainability Bonds (3<sup>rd</sup> party assessments)

The European Social Fund (ESF) promotes education and employment opportunities also aiming at social inclusion and reduction of poverty in NRW. The most recent report refers to monitored effects from 2014 to 2018 (Ministerium für Arbeit, Gesundheit und Soziales des Landes Nordrhein-Westfalen, 2019). Within the current use of proceeds of the NRW Sustainability Bond #6, EUR 38.5m are attributed to further co-finance these measures.

**Table 9: 3<sup>rd</sup> party assessment for ESF (common output indicators from 2014-2018)**

Sub-Categories of B	Share	Reported Effects for 2014-2018 in NRW
<b>Priority A</b> (promoting employment and supporting labour mobility)	56%	847 participants still looking for work 4,343 participants in school-based or professional education 1,565 participants achieving professional training 4,864 participants in jobs after participating
<b>Priority B</b> (promoting social inclusion and combating poverty and all forms of discrimination)	21%	890 participants still looking for work 2,111 participants in school-based or professional education 5,322 participants achieving professional training 7,951 participants in jobs after participating
<b>Priority C</b> (investment in education, skills, and lifelong learning)	19%	323 participants still looking for work 1,729 participants in school-based or professional education 2,991 participants achieving professional training 1,663 participants in jobs after participating
<b>Priority D</b> (technical help)	4%	116 new employees 92,337 ESF projects supported 193 publications

source: Ministerium für Arbeit, Gesundheit und Soziales des Landes Nordrhein-Westfalen, 2019

## Annex

### Final Financial Allocation by Ministerium der Finanzen NRW

Table 10: Budget plan and budget result for projects in NRW Sustainability Bond #6

main SDGs   second. SDGs	Project (* indicates changes in the budget plan compared to prior publications) Type: social (S)   green (G)		Budget Plan	Budget Result
			[million EUR]	[million EUR]
A - Education & Sustainability Research			968.4	957.2
4/9   5	Bund-Länder-Covenant for the expansion of universities	S	495.9	495.9
	Training facilities for the education of special education teachers	S	21.2	21.2
	Measures to improve the quality of teaching and study at universities	S	249.0	249.0
	Return programme for highly qualified young researchers from abroad	S	4.3	3.6
	Promotion of equality at universities	S	4.3	2.6
	Professional education of geriatric nurses	S	85.5	86.6
	Excellence Strategy	S	32.0	31.0
	Promotion of innovation	S	16.3	12.9
	Johannes-Rau-Forschungsgemeinschaft	S	14.9	13.9
	Energy research	S	6.9	5.1
	Research and innovation in the fields of sustainable development	S	11.1	10.7
	Sustainable development	S	1.5	1.2
	Foundation for Nature and Sustainable Development	S	2.0	2.0
	Facilities for environmental education	S	1.9	1.8
	EU School programme	S	2.9	2.3
	Consumer protection	S	18.8	17.4
B - Inclusion & Social Coherence			556.9	528.6
1/10   4/8/16	Model projects for a social labour market in NRW	S	20.0	5.0
	Start in education and work	S	50.0	50.0
	European Social Fund 2014-2020 (State's share)	S	39.0	38.5
	Fight against poverty and social exclusion	S	9.3	7.8
	Social inclusion of persons with disabilities	S	3.7	3.4
	Occupational integration of people with disabilities	S	7.7	4.9
	Promoting integration of migrants living together in diversity	S	55.1	50.3
	Language courses at child care facilities	S	25.0	25.0
	Support for family centres	S	42.1	40.3
	Assignments to municipalities for child care in special cases	S	18.2	20.8
	plusKITA	S	45.0	45.0
	Exemption to contribution for parents for the last year of day care	S	194.1	190.5
	School social work	S	47.7	47.3

<b>C - Public Transportation &amp; Local Mobility</b>			<b>214.2</b>	<b>205.2</b>
<b>9/11   10/12/ 13</b>	Public transportation for low-income citizens	S	40.0	40.0
	Public transportation for pupils and students	G	135.0	134.5
	Local mobility	G	26.8	20.0
	Improvement and expansion of bicycle lanes	G	12.4	10.8
<b>D - Climate Protection &amp; Energy Transition</b>			<b>96.1</b>	<b>91.2</b>
<b>7/13   8</b>	Energy systems of the future	G	59.0	62.4
	Environmental economy, sustainable economy	G	1.9	0.6
	Funding programme for pumped storage power plants	G	4.0	0.0
	European Regional Development Fund (ERDF) 2014-2020	G	24.5	23.2
	Climate Action / Regional Climate Adaptation Measures (LIFE)	G	0.8	0.3
	Resource efficiency	G	5.9	4.7
<b>E - Protection of Natural Resources</b>			<b>153.4</b>	<b>148.3</b>
<b>2/15   6/11/ 12/13</b>	Soil protection	G	4.7	3.4
	Protection of nature	G	35.9	32.2
	Flood protection and river restoration	G	66.7	66.7
	Responsible agriculture	G	6.8	6.7
	European Agricultural Fund for Rural Development – EAFRD	G	39.3	39.3
<b>F - Sustainable Urban Development</b>			<b>430.4</b>	<b>349.9</b>
<b>9/11   10/12</b>	Urban Reconstruction in the West	S&G	50.1	45.7
	Social City	S&G	55.2	38.1
	Development plan geriatric care	S&G	16.3	7.3
	Broadband expansion / Digitalization	S&G	308.9	258.8
<b>F - Sustainable Urban Development</b>			<b>430.4</b>	<b>349.9</b>
<b>3/13   4/7/11/ 12</b>	Modernisation of university buildings	G	164.2	157.4
	Conservation and remediation of existing university clinics	G	131.5	150.0
	Enlargement and other investments for university clinics	G	212.4*	198.2
<b>in TOTAL</b>			<b>2,927.5</b>	<b>2,786.1</b>

## Overview on GHG savings (NRW Sustainability Bond #6)

**Table 11: Results on GHG savings according to ICMA framework 2019**

Energy Efficiency (EE)	Signed Amount	Share (of investment)	Eligibility for green bonds	EE Component	Annual energy savings		Annual GHG emissions avoided		Absolute GHG emissions	
Project name	million EURO	%	%	%	GWh/a		kilotons of CO2-equivalents		kilotons of CO2-equivalents	
					100%	financed	100%	financed	100%	financed
New university buildings	61.9	100	100	46	1.8	1.8	0.40	0.40	360.7	360.7
University buildings (refurbishment)	6.1	100	100	28	0.3	0.3	0.07	0.07	66.4	66.4
New university clinical buildings	208.5	100	100	85	5.0	5.0	1.12	1.12	634.8	634.8
University clinical buildings (refurbishment)	46.1	100	100	45	6.2	6.2	1.37	1.37	527.8	527.8
Low Carbon Transport (LCT)	Signed Amount	Share (of investment)	Eligibility for green bonds	LCT Component	Annual savings of car km		Annual GHG emissions avoided		Absolute GHG emissions	
Project name	million EURO	%	%	%	million passenger km/a		kilotons of CO2-equivalents		kilotons of CO2-equivalents	
					100%	financed	100%	financed	100%	financed
Student tickets	21.7	9.2	100	100	768.8	70.8	109.2	10.0	51.5	4.7
Urban cycle paths*	20.0	100	100	100	36.8	36.8	5.23	5.23	0	0
Non-urban fast cycle paths*	10.8	100	100	100	5.9	5.9	0.85	0.85	0	0

\*production of bicycles not included

source: own calculation based on methods and data depicted in this report

## Methods and Data

The literature, methods and data used for this summary are going to be depicted in full detail in the upcoming full report. This report will be published at:

<https://www.nachhaltigkeit.nrw.de/projekte/nachhaltigkeitsanleihen/sustainability-bond-6/>

## References in the Investor Briefing

- Ministerium für Arbeit, Gesundheit und Soziales des Landes Nordrhein-Westfalen. (2019). *Jährlicher Durchführungsbericht für das Ziel 'Investitionen in Wachstum und Beschäftigung'* (p. 82).
- Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes NRW. (2019a). *Kapitel 10 030 (Agrarwirtschaft, Forstwirtschaft, Naturschutz und Landschaftspflege)*. <https://www.haus-halt.fm.nrw.de/daten/hh2019.ges/daten/pdf/2019/hh10/kap030.pdf>
- Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes NRW. (2019b). *Jährlicher Durchführungsbericht | Germany—Rural Development Programme (Regional)—North Rhine-Westphalia* (p. 266) [Implementation Report]. [https://www.umwelt.nrw.de/fileadmin/redaktion/PDFs/landwirtschaft/laendl\\_entwicklung/NRW-Programm\\_Laendlicher\\_Raum\\_September\\_2019.pdf](https://www.umwelt.nrw.de/fileadmin/redaktion/PDFs/landwirtschaft/laendl_entwicklung/NRW-Programm_Laendlicher_Raum_September_2019.pdf)
- Ministerium für Wirtschaft, Innovation, Digitalisierung und Energie des Landes Nordrhein-Westfalen. (2019). *Jährlicher Durchführungsbericht im Rahmen des Ziels 'Investitionen in Wachstum und Beschäftigung'*. [https://www.efre.nrw.de/fileadmin/user\\_upload/Durchfuehrungsbericht\\_2018\\_01.pdf](https://www.efre.nrw.de/fileadmin/user_upload/Durchfuehrungsbericht_2018_01.pdf)