

# Investor Briefing

## NRW Sustainability Bond #7

Analysis of the Sustainability Bond #7  
issued in 2020 by the German State of  
North Rhine-Westphalia (NRW)

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**Authors:**

Lena Hennes, Jens Teubler, Prof. Dr Oscar Reutter,

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.

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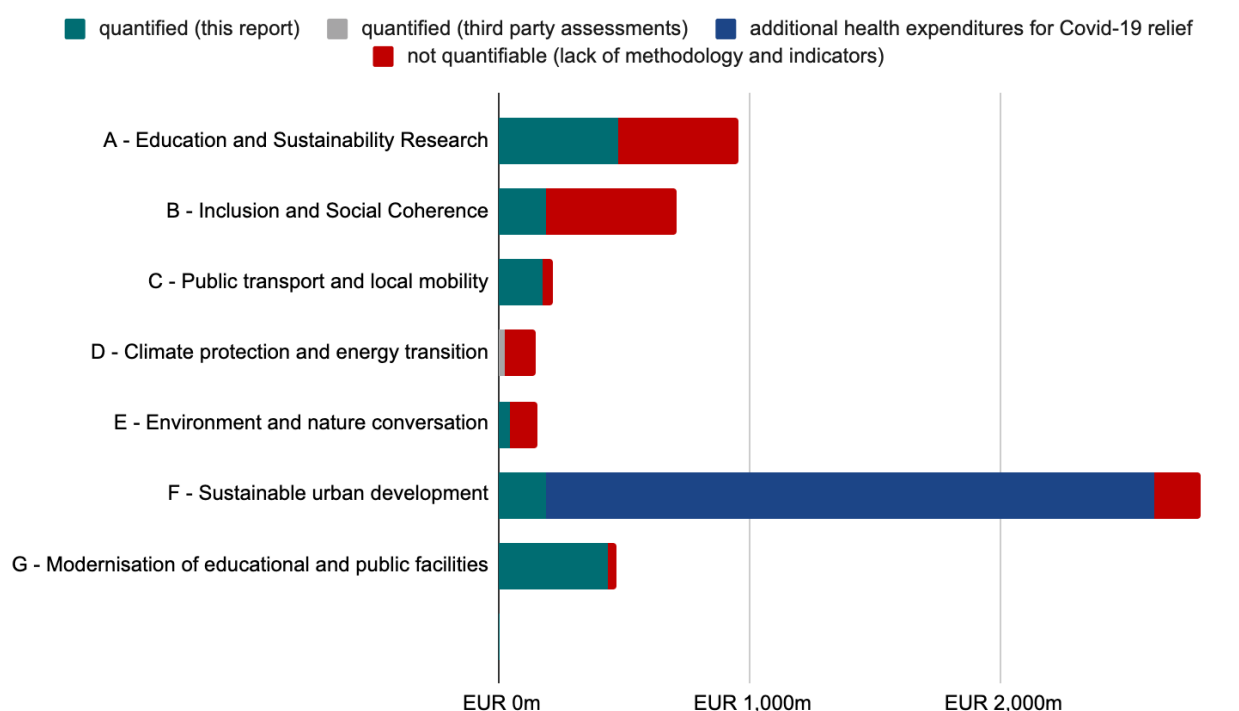
## Overview

The Wuppertal Institute conducted an impact analysis of the NRW Sustainability Bond #7 (2020) on behalf of the State Government of North Rhine-Westphalia (NRW). The most recent bond has a volume of EUR 2.4bn (EUR 5.45bn were allocated), terms of 15 years and consists of 82 eligible projects from the State's 2020 general budget (sustainable value-added was confirmed in a second party opinion by ISS ESG<sup>1</sup>). This report analyses the bond's overall contribution to climate, environmental and social performance and includes information on the impacts of the previous six bonds (NRW Sustainability Bond #1 to #6). It is based on data collected until April 2021. In addition, a description of the methodology is published<sup>2</sup>.

Figure 1 illustrates the project categories in the bond and quantifies the shares that could be linked to either environmental or social indicators. 27% or EUR 1.5bn of the total investment (EUR 5.45bn) could be directly quantified in this report. Further EUR 21 million (0.4%) were assessed by third parties and are also included in this briefing. The remaining EUR 3.93bn (72%) could either not be quantified due to lack of data or are not quantifiable at all under the existing scientific framework.

A total of EUR 2,419.9m for new projects in the health sector are included in the bond that cope with the consequences of the coronavirus pandemic. These include additional material costs in university hospitals, maintaining the functionality of the medical infrastructure, measures in hospitals (especially respirators), the procurement of protective equipment in hospitals and the State share of the Corona bonus for employees in geriatric care or the NRW special programme university hospitals and other single measures. These expenses were not quantified in this report.

**Figure 1: Share of quantified investments in the Sustainability Bond #7**



source: own calculation based on methods and data depicted in the method description

Table 10 in the Annex provides the allocation reporting.

<sup>1</sup> see [https://www.nachhaltigkeit.nrw.de/fileadmin/user\\_upload/Nachhaltigkeitsanleihe\\_7/200918\\_SPO\\_LandNRW.pdf](https://www.nachhaltigkeit.nrw.de/fileadmin/user_upload/Nachhaltigkeitsanleihe_7/200918_SPO_LandNRW.pdf)

<sup>2</sup> A method description will be published shortly after publication of the investor briefing at hand.

### Co-Benefits of projects in the bond

Many of the projects in the bond contribute to both green and social impacts (or more than one impact for that matter). While the refurbishment of a university hospital is expected to reduce its energy requirements, in many cases it will also improve healthcare standards at the hospital. The same applies to investments in public infrastructure (e.g., enabling broadband connections or social tickets), where measures lead to benefits in more than one aspect. This kind of effect is called a co-impact and is often challenging to quantify. The Wuppertal Institute plans to incorporate some of these effects with the help of a Theory-of-Change in future reports.

### Further Information: NRW Sustainability Strategy

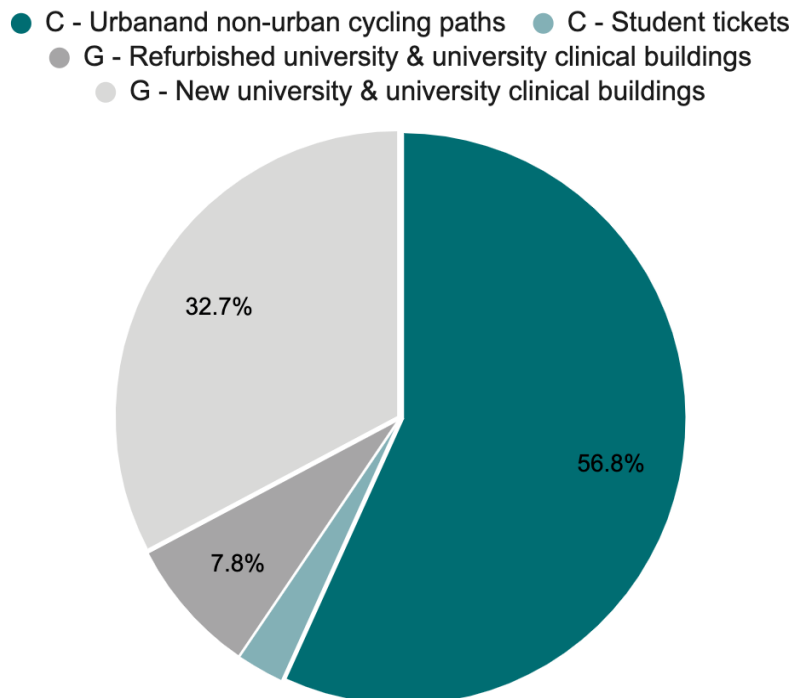
The NRW Sustainability Bond #7 is part of the *Sustainability Strategy NRW*, which aims to improve the sustainable development of the whole State of NRW. The Sustainability Strategy NRW was updated in September 2020. An indicator report about the progress in sustainability with regular updates will be presented on a dedicated website.

## Environmental Impacts

### Quantified GHG Savings in NRW Sustainability Bond #7

The estimated GHG emissions avoided by the bond can be attributed to investments of EUR 344m for 7 different measures. The measures are part of investments in category C (student tickets, urban cycle lanes and non-urban cycle fast lanes) and G (new and refurbished university and university hospital buildings). The measures are expected to save approximately 263,078 tons of CO<sub>2</sub>-equivalents (unit [CO<sub>2</sub>e]) over their lifetime (see Figure 2).

Figure 2: GHG Savings (over lifetime) in the NRW Sustainability Bond #7



source: own calculation based on methods and data depicted in method description

Annual results for each measure range from 70 tons CO<sub>2</sub>e per year to 7,139 CO<sub>2</sub>e tons per year (see Table 1). With the exception of student tickets, all of these measures are expected to save emissions beyond the term of the Sustainability Bond.

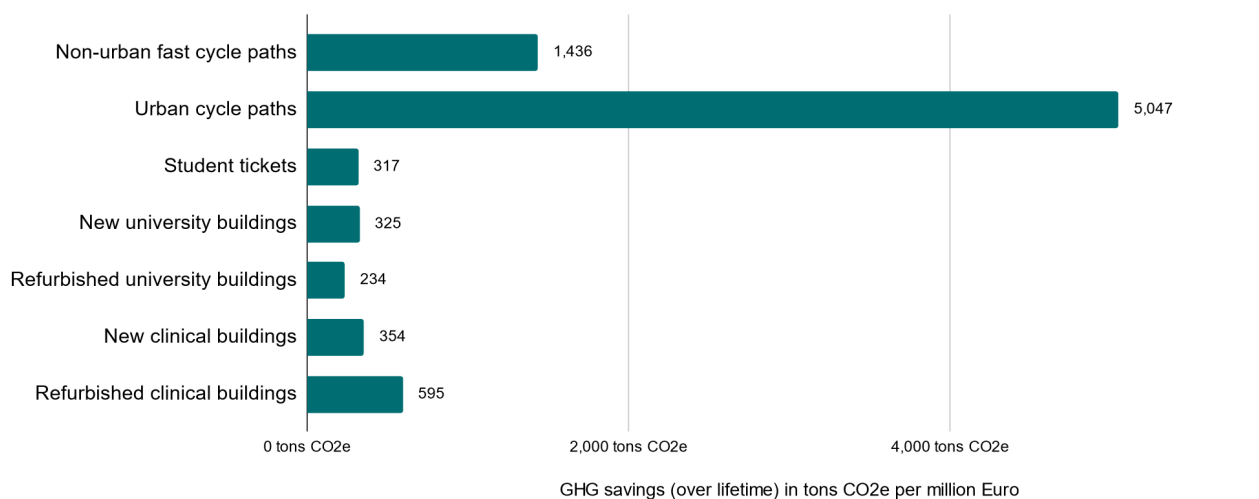
**Table 1: GHG savings of measures in categories C and G**

Measure	GHG savings per year	GHG savings over Lifetime	average Lifetime (assumption)
	<i>in [tons CO<sub>2</sub>e]</i>	<i>in [tons CO<sub>2</sub>e]</i>	<i>in years [a]</i>
Non-urban fast cycle paths	474	14,219	30
Urban cycle paths	4,509	135,262	30
Student tickets	7,139	7,139	1
New university buildings	363	18,150	50
Refurbished university buildings	70	1,400	20
New clinical buildings	1,028	67,848	66
Refurbished clinical buildings	953	19,060	20

source: own calculation based on methods and data depicted in the method description

In terms of investments, the anticipated impacts can be normalised to represent the GHG savings over lifetime when one million EUR are invested (see Figure 3).

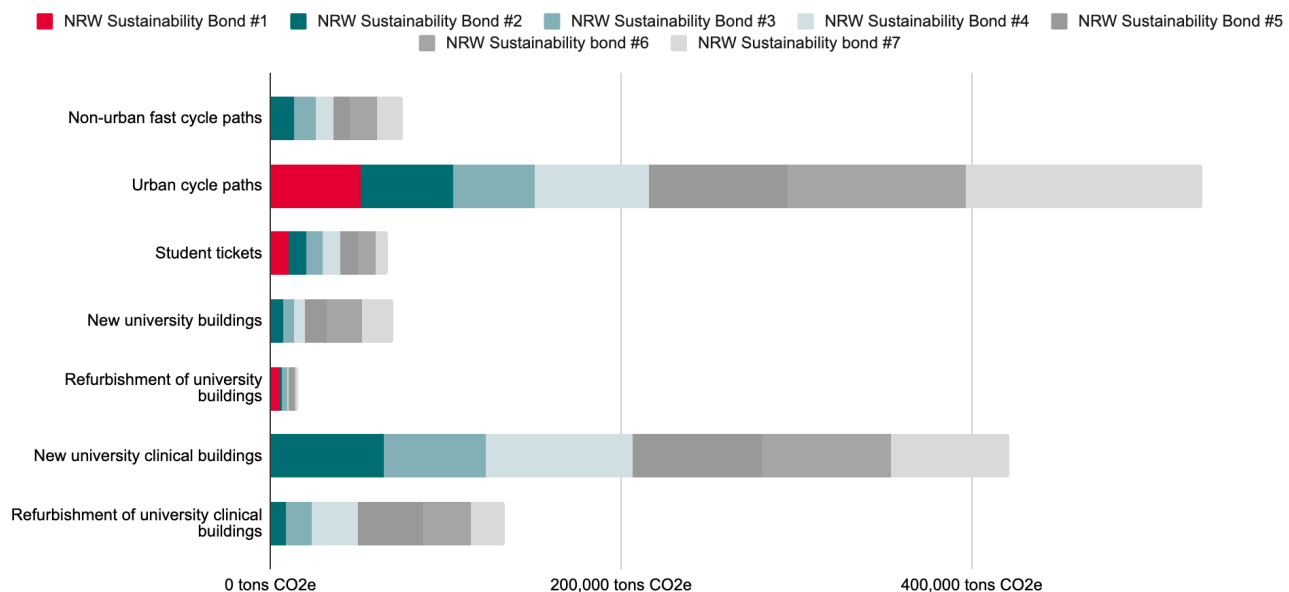
**Figure 3: Efficiency of climate protection measures for quantified investments**



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

All climate protection categories in the Sustainability Bond #7 were already part of Sustainability Bonds #6(2019) #5 (2018), #4 (2017), #3 (2016), #2 (2015) and #1 (2014). Consequently, they can be aggregated into a seven-year portfolio (see Figure 4). For single measures such as solar thermal energy generation (Bond #3) or combined heat and power (Bond #2), this was not feasible. In total, EUR 1,572m was invested over seven years (2014-2020), helping to generate GHG savings of over 1.3 million tons of CO<sub>2</sub>e over the assumed lifetime of the measures (see Figure 4)<sup>3</sup>.

**Figure 4: GHG savings over lifetime of projects from 2014 to 2020 in the portfolio**



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

### Additional environmental impacts for the NRW Sustainability Bonds #1 to #7 (3<sup>rd</sup> party assessments)

The NRW Sustainability Bonds #1 to #7 also include approximately EUR 21m of investments in further projects that improve ecological development over the course of seven years (2014-2020). These projects do not only contribute to the mitigation of GHG emissions (e.g., with the help of improving energy efficiency), but also include measures to enhance resource efficiency or waste avoidance in companies. The State support under the Sustainability Bond enables investments by other actors and thus creates leverage for joint efforts to reduce environmental impacts in these domains.

The state-funded agencies reporting in this category are the "Effizienz Agentur NRW" (efa+) and "Ökoprofit". Both are offering consultancy services for businesses. The European Regional Development Fund (ERDF) on the other hand aims to balance disparities between the regions of the European Union, but also directs funds towards a low-carbon economy in its Priority Axis 3.

Even though a direct allocation of the effects to investments in the bond is not possible, they are reported here in form of 3<sup>rd</sup> party assessments. The State investments as well as the investments of other actors are shown in Table 2. They contribute to energy, material and GHG emission savings over several years. As the 2020 results for the ERDF are not yet available at the time of this impact report, its investments and effects still refer to the period from 2014 to 2019.

<sup>3</sup> The calculation for urban cycle paths and non-urban cycle paths was adjusted on the basis of new studies. The underlying assumptions could thus be estimated more validly. The GHG savings potentials were therefore also adjusted for past bonds. Whereas previously approximately 640,000 avoided vehicle km per year per km of cycle path were assumed, in the more recent calculations roughly 410,000 avoided km per year are assumed.

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

Type	State funding (NRW Bond #1 to #7)	Investments outside the Sustainability Bond (budget years 2014-2020)	Environmental Savings (2014-2020)*
Effizienz Agentur NRW efa+ (as part of resource efficient economy)	circa EUR 31.5m	EUR 76.3m in the scope of resource efficiency (validated)	88,339 tons of CO <sub>2</sub> e
			26,585 tons of material resources
			941,336 m3 of water
		EUR 740.8m in the scope of financing (validated)	242,339 tons of CO <sub>2</sub> e
			107,376 tons of material resources
			217,329 m3 of water
Ökoprofit NRW (as part of resource efficient economy)	circa EUR 1.4m	EUR 81.6m	110,932 tons of CO <sub>2</sub> e
			12,135 tons of waste
			515,874 m3 of water
ERDF (2014-2020) (priority axis 3 on CO2 reduction)	circa EUR 45.6m	only for budget years 2014-2019 (no report for 2020 as of yet)	
		not assignable	2.250.490 t CO <sub>2</sub> e**
			10.985 t CO <sub>2</sub> e***
<p>*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).</p> <p>**Forecast by the beneficiaries</p> <p>***Outputs achieved by the projects</p>			

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

## Ecological Impacts

While GHG emissions accounting methodologies are well established, only few environmental impacts can be monitored and quantified in a way that is consistent with climate change mitigation impacts. Nevertheless, the following impact indicators could be identified which can be directly related to investments in the State budget.

The present findings and the methodology for environmental impacts are also described in the method description.

## Sustainable Land Use

Of the total volume of EUR 153.9m in category E, EUR 28.6m (of which EUR 16.3m 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. The annual supported area amounts to circa 59,000 ha in 2020 compared to 55,000 ha in 2019.

**Table 3: Indicator „Sustainable Land Use” in NRW Sustainability Bond #7**

Subcategory	Investment volume (2020)	Area supported per year (2020)
Responsible Agriculture	EUR 12.3m	25,257 ha
EAFRD	EUR 16.3m	33,391 ha
<b>in TOTAL</b>	<b>EUR 28.6m</b>	<b>58,648 ha</b>

source: own calculation based on Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes NRW (2020)

### Animal-friendly Husbandry

Complementary to the previous reports, the EAFRD support can now also be assigned to animal-friendly husbandry. Table 4 shows the findings in this category, which relate to the attributed effects in EAFRD for animals in summer grazing and rearing on straw (circa 96,000 animals supported compared to 60,000 in 2019).

**Table 4: Indicator „Animals in animal-friendly husbandry” in NRW Sustainability Bond #7**

Subcategory	Investment volume (2020)	Animals supported per year (2020) (estimated)
<b>Animal-friendly Husbandry</b>	<b>EUR 3.4m</b>	<b>95,717 animals</b>

source: own calculation based on Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes NRW (2020)

### Biological Stations

The tasks of the biological stations involve the protection and care of flora, fauna and landscape as well as nature conservation education and the associated public relations work. Of a total investment volume of EUR 34.3 m in the bond category "nature conservation", EUR 11.4 m can be allocated to these stations.

**Table 5: Indicator „Number of Biological Stations” in NRW Sustainability Bond #7**

Subcategory	Investment volume (2020)	Biological stations supported per year (2020) (estimated)
<b>Protection of nature</b>	<b>EUR 11.4m</b>	<b>44 biological stations</b>

source: Correspondence with Ministerium der Finanzen Nordrhein-Westfalen and own attribution based on Dachverband Biologische Stationen NRW (2020)



## Social Impacts

Few social projects in the bond can be directly linked to quantifiable impacts because required data are not reported or there is a deficiency of suitable methods. Hence, many projects are not part of the present impact analysis, especially projects in the fields of education, inclusion and social cohesion. Social tickets, for example, clearly help poor people with their daily mobility, but the number of beneficiaries has not been collected since 2015 (about 300,000 people at that time<sup>4</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 two years of day-care for children. In this context, the hardship fund for school lunches should also be mentioned: A funding volume of 1.080 EUR is available for each child, but in the States budget the programme is included in a collective fund category and therefore cannot be allocated. The Wuppertal Institute is constantly enlarging the spectrum of social impacts covered in its impact reports. The current findings as well as the first consistent methodology for social impact reporting are included in the method description.

### 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 956 m, 87% or EUR 827.5 m were invested to finance additional student capacities, 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 16 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 47,000 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**

Projects in category A	Share	Volume (2020)	Effect
Other funding in category A	42%	EUR 399 m	no quantification
Funding of graduates	26%	EUR 248 m	62,000 students
Funding of first-year students in NRW	10%	EUR 94 m	29,000 students
Other measures for the enlargement of universities	8%	EUR 80 m	no quantification
Funding of the professional education of geriatric nurses	8%	EUR 74 m	20,000 training positions
Funding of master studies	6%	EUR 53 m	10,600 students
Funding of the return for highly qualified young researchers	>0%	EUR 4 m	16 research groups
EU School programme	>0%	EUR 2 m	47,000 pupils
Training facilities for the education of special education teachers	>0%	EUR 2 m	2,300 training positions
<b>in TOTAL</b>	<b>100%</b>	<b>EUR 956 m</b>	<b>-</b>

source: own calculations based on methods and data depicted in the method description  
(number of bachelor graduates on the basis of 2019 as new statistics were not available at the time of publication)

<sup>4</sup> see <https://www.landtag.nrw.de/Dokumentenservice/portal/WWW/dokumentenarchiv/Dokument/MMD17-717.pdf>



## Inclusion and Social Coherence (Category B)

The investments of the NRW Sustainability Bond #7 dedicated to inclusion and social cohesion amount to a total of EUR 710.8 m. Part of these funds in category B were used to create new jobs for people with disabilities, to finance additional language support and day-care centres for children, family centres, the prevention of homelessness or additional social workers at schools.

By relating the available funding for these five measures, it can be quantified that the Sustainability Bond NRW #7 provides at least 135 new jobs for people with disabilities (newly created jobs) and creates 733 jobs for social workers in NRW (costs for material and salary per year). The funding also prevented 1,448 people from becoming homeless in 20 different municipalities. In addition, 2,121 full-time positions for pedagogical staff are financed to improve educational opportunities (with a focus on language development) for children of day-care centres with a high share of low-income families, with a migration background (PlusKITAS). Moreover, the bond supports 3,249 family support centres, which offer low-threshold assistance to families with regard to everyday conflicts, compatibility of family and work, children's language education and parenting. All five 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 #7	Type of quantification	Social Impact
Occupational integration of people with disabilities	EUR 2.7 m	costs	135 new jobs
PlusKita and language courses at childcare facilities	EUR 82.4 m	costs	2,121 founded positions for pedagogical staff
Support for family centres	EUR 54.0 m	reported effects	3,249 supported family centres
Fight against poverty and social exclusion (share for "Endlich ein ZUHAUSE!")	EUR 3.0 m	reported effects	1,448 prevented cases of homelessness (persons)
Social School Work	EUR 47.5 m	costs	733 founded jobs

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

## Broadband Expansion (Category F)

Broadband connections (download rates of 50 Mbits/s and more) improve social and economic access for households, institutions and businesses. They also enable opportunities for a greener economy by reducing work-related traffic through home office solutions or by attracting businesses to more rural areas. 7% of investments in the urban development bond category, or EUR 189.4 m, are allocated to this end. In past bonds, broadband expansion took up the largest share of category F, at around 70%. This year, the largest share of category F spending was related to health system spending in connection with the Corona pandemic (in total EUR 2,419.9 m e.g., EUR 669.9 m for health measures to deal with the Corona virus pandemic and EUR 1000 m for the NRW special programme for university hospitals). 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>5</sup>), about EUR 2,000 can be estimated as costs per access point on average. The investment in that bond category therefore represent about 94,775 new broadband connections in NRW.

<sup>5</sup> see <https://www.bmvi.de/SharedDocs/DE/Artikel/DG/breitbandatlas/breitbandatlas.html>

### Social impact indicators for the Sustainability Bond NRW #7

Table 8 summarizes the scalable social impact indicators for the Sustainability Bond NRW #7, which are mainly based on fix lump sums in the different State programmes (e.g., such as re-fundable costs for social workers).

Future reports will enlarge this indicator set and, where possible, map the effects to the cause-effect chain of desired societal and socio-economic outcomes in NRW.

**Table 8: Social Impact Indicators for Sustainability Bond NRW #7**

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	380 school fees per student	lump sum	Education of geriatric nurses
Jobs for disabled people	20,000 per job created	max. funding	Occupational integration of people with disabilities
Jobs for school workers	65,000 per job	lump sum	Social school work
Broadband connections	2,000 per access point	sample	Broadband expansion
Pedagogical staff	38,900 per position	lump sum	plusKITA and language courses
Family centres	16,600 per family centre	lump sum	Support for family centres
Prevented homelessness	2,071 per homeless person	lump sum	Fight against poverty and social exclusion
Research groups	25,000 per research group	lump sum	Return programme for highly qualified young researchers from abroad
Pupils	35 per pupil	lump sum	EU School programme

source: own calculation based on methods and data depicted in method description

## Annex

### Allocation Report by Ministerium der Finanzen NRW

Table 10 lists the budget plan and budget results for all projects in the NRW Sustainability Bond #7. In total, EUR 5.45bn, more than 100% of the bond volume (EUR 2.4bn), have been allocated to eligible projects.

**Table 10: Budget plan and budget result for projects in NRW Sustainability Bond #7**

main SDGs   second. SDGs	Project (* indicates changes in the budget plan compared to prior publications) Type: social (S)   green (G)		Budget Plan [million EUR]	Budget Result [million EUR]
	<b>A - Education &amp; Sustainability Research</b>		<b>979.2</b>	<b>956.0</b>
<b>4/9   5</b>	Bund-Länder-Covenant for the expansion of universities (State's share)	S	475.9	474.8
	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	5.4	4.0
	Promotion of equality at universities	S	4.3	4.3
	Professional education of geriatric nurses	S	85.3	74.3
	Excellence Strategy	S	32.0	25.6
	Promotion of innovation	S	14.4	25.9
	Johannes-Rau-Forschungsgemeinschaft	S	15.4	14.2
	Greenhouse gas neutral industry of the future	S	2.5	1.7
	Energy research offensive and real laboratories	S	11.1	3.2
	Research and innovation in the fields of sustainable development	S	35.2	32.4
	Sustainable development	S	1.4	1.1
	Foundation for Nature and Sustainable Development	S	2.0	2.0
	Facilities for environmental education	S	2.5	2.3
	EU School programme	S	2.9	1.6
	Consumer protection	S	18.9	18.6

<b>B - Inclusion &amp; Social Coherence</b>			<b>773.3</b>	<b>710.8</b>
<b>1/4/5/8/10   16</b>	European Social Fund 2014-2020 (State's share)	S	38.5	35.7
	Equality and potential development in work and society	S	5.0	1.2
	Fight against poverty and social exclusion	S	9.5	9.2
	Social inclusion of persons with disabilities	S	3.7	2.9
	Occupational integration of people with disabilities	S	7.7	2.7
	Measures for children from refugee families and for young refugees	S	12.6	10.4
	Promoting integration of migrants living together in diversity	S	74.4	57.5
	Municipal integration management	S	25.0	10.2
	PlusKita and language courses at child care facilities	S	82.5	82.4
	Support for family centres	S	54.0	52.2
	Childcare in special cases	S	18.2	21.0
	Exemption to contribution for parents for the last year of day care	S	292.0	287.3
	School social work	S	47.7	47.5
	Vacation programme at general education schools and special schools	S	75.0	4.3
	Girls in special situations	S	1.1	1.0
	Protection from violence	S	26.4	85.1
<b>C - Public Transportation &amp; Local Mobility</b>			<b>218.1</b>	<b>215.5</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	138.9	138.9
	Local mobility	S	26.8	26.8
	Improvement and expansion of bicycle lanes	G	12.4	9.9
<b>D - Climate Protection &amp; Energy Transition</b>			<b>243.1</b>	<b>144.2</b>
<b>7/13   8</b>	Energy systems of the future, system transformation, innovation, e-mobility	G	133.5	107.4
	Target group-oriented climate protection	G	10.1	0.2
	Environmental economy, sustainable economy	G	1.8	1.2
	Green economy	G	5.0	0.1
	Funding programme for pumped storage power plants	G	2.0	0.0
	European Fund for Regional Development (ERDF) 2014-2020 (State's	G	18.6	16.0
	Photovoltaic funding	G	55.0	13.0
	Climate Action / Regional Climate Adaptation Measures (LIFE)	G	1.3	1.2
	Resource efficiency	G	5.9	5.0
	Circular economy and resource efficiency	G	10.0	0.1

<b>E - Protection of Natural Resources</b>			<b>187.6</b>	<b>153.9</b>
<b>2/15   6/11/12/13</b>	Soil protection	G	4.7	3.6
	Forest reforestation	G	38.0	17.0
	Protection of nature	G	37.1	34.3
	Flood protection and river restoration	G	56.7	54.7
	Responsible agriculture	G	13.8	12.3
	Improvement of animal welfare	G	5.0	1.5
	European Agricultural Fund for Rural Development – EAFRD (State's	G	32.3	30.6
<b>F - Sustainable Urban Development</b>			<b>3,576.6</b>	<b>2,796.7</b>
<b>3/9/11   10/12</b>	Urban development programme Urban Reconstruction in the West	S&G	53.3	29.0
	Social City	S&G	59.0	18.9
	State programme for village renewal	S&G	10.0	9.6
	Health expenditures to deal with the coronavirus pandemic	S&G	823.9	669.9
	NRW special programme for university hospitals	S&G	1.000.0	1.000.0
	Investment programme for hospitals and nursing schools	S&G	1.270.0	750.0
	Hospital structure fund	S&G	95.0	95.0
	Health economy, telematics, further development of the health campus	S&G	11.3	4.1
	Health aid, health protection, hygiene action plan, disease control	S&G	8.0	6.3
	Measures to ensure medical care	S&G	2.5	2.5
	Combating the dangers of addiction	S&G	14.3	12.7
	Psychiatric care	S&G	1.8	1.6
	Development plan geriatric care	S&G	16.3	7.7
	Broadband expansion / Digitalization	S&G	211.3	189.4
<b>G - Modernisation of Educational and Public Health Facilities</b>			<b>481.5</b>	<b>469.0</b>
<b>3/13   4/7/11/12</b>	Modernisation of university buildings	G	140.0	143.9
	Conservation and remediation of existing facilities	G	131.5	116.5
	Enlargement and other investments	G	210.0*	208.6
<b>in TOTAL</b>			<b>6,459.4</b>	<b>5,446.0</b>

source: data provided by the Ministry of Finance of North Rhine-Westphalia (NRW)



## Overview on GHG savings (NRW Sustainability Bond #7)

The following Table 11 lists all GHG saving results in accordance with the ICMA guidelines for green bond reporting.

**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 CO <sub>2</sub> -equivalents		kilotons of CO <sub>2</sub> -equivalents	
					100%	financed	100%	financed	100%	financed
New university buildings	55.8	100	100	46	1.6	1.6	0.36	0.36	402	402
University buildings (refurbishment)	6.0	100	100	28	0.3	0.3	0.7	0.7	71	71
New university clinical buildings	191.8	100	100	77	4.6	4.6	1.0	1.0	1370	1370
University clinical buildings (refurbishment)	32.0	100	100	41	4.3	4.3	0.95	0.95	1117	1117
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 CO <sub>2</sub> -equivalents		kilotons of CO <sub>2</sub> -equivalents	
					100%	financed	100%	financed	100%	financed
Student tickets	22.5	38.5	100	100	133	50	19	7.1	8.9	3.3
Urban cycle paths**	26.8	100	100	100	31.8	31.8	4.5	4.5	0	0
Non-urban fast cycle paths**	9.9	100	100	100	3.3	3.3	0.47	0.47	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 method description. This report will be published at:

<https://www.nachhaltigkeit.nrw.de/projekte/nachhaltigkeitsanleihen/sustainability-bond-7/>

## References in the Investor Briefing

Dachverband Biologische Stationen NRW (2020). Biologische Stationen. <https://www.biostationen-nrw.com/biologische-stationen/> last access 11.2.2020

Ministerium für Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes NRW. (2020). *Jährlicher Durchführungsbericht Germany - Rural Development Programme (Regional) - North Rhine-Westphalia 2019*. [https://www.umwelt.nrw.de/fileadmin/redaktion/PDFs/landwirtschaft/jaehrlicher\\_durchfuehrungsbericht\\_2019\\_angenommen.pdf](https://www.umwelt.nrw.de/fileadmin/redaktion/PDFs/landwirtschaft/jaehrlicher_durchfuehrungsbericht_2019_angenommen.pdf)

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