



4th Performance Report of Elected Dutch Municipalities of BNG Bank Sustainability Bond of November 2018

November 2022

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Publication number

205045-22

Date

november 2022



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Executive summary

November 26, 2018, BNG Bank launched its fifth Sustainability Bond, a new EUR 750 million | 0.5%, 7-year benchmark. The Framework document for the BNG Bank Sustainability Bond 2018 was provided to BNG Bank by Telos -Tilburg University- on 4 October 2018, describing the selection process of best-in-class Dutch municipalities eligible for the bond. The same selection of sustainable best-in-class municipalities was used to issue another sustainability bond in 2019. This resulted in an AUD 400 million | 1.9% sustainability bond which is also due November 2025.

An important quality indicator of the bond is the 'Use of proceeds reporting (UPR)'. BNG Bank intends to include in the UPR a yearly impact report, during the period 2019–2025, based on updated data for the sustainability scores of all Dutch municipalities. The update will give insight in the changes in sustainability scores of the group of 115 Elected Municipalities compared to the total group of 344 municipalities of the Netherlands. BNG Bank asked Telos -Tilburg University- to provide the yearly impact reports for this bond, based on its yearly National Monitor Sustainable Municipalities. This performance report is the fourth impact report of the 2018 Sustainability Bonds, covering the years 2018-2022.

The Elected Municipalities continued to outperform the total group of municipalities with 2.3 percentage points (52.9 vs 50.6), as listed in table 1. Both groups of municipalities show an improvement of the overall score with 2.2-2.4 percentage points. Largest improvements occurred this year for the economic capital (4.1/4.3 percentage points), while those for the ecological and socio-cultural capital were smaller (2.1/1.5 and 1.0/0.9 percentage points).

Table 1. Sustainability scores of 115 elected municipalities and of the total group of 344 Dutch municipalities in 2022 compared to 2018

Sustainability capital	Elected 2018	Total 2018	Elected 2022	Total 2022	Elected: Difference 2018-2022	Total: Difference 2018-2022 ¹
Total	50.5	48.3	52.9	50.6	2.4	2.2
Socio-cultural	52.3	49.7	53.3	50.6	1.0	0.9
Ecological	49.4	47.9	51.5	49.4	2.1	1.5
Economic	49.9	47.4	54.1	51.7	4.1	4.3

A closer look at the CO2 reductions shows that the group of Elected Municipalities realized a reduction in CO2 emissions over the last years; the CO2 emissions decreased with 12.9%. The other municipalities realized a smaller reduction of 4.5%.

¹ The calculated differences can be 0.1 percentage point higher or lower due to rounding differences in the calculation. This is the case for all calculated differences in the report.

Scores of municipalities are rather dynamic from year to year, although major differences and advantages among municipalities are of a structural nature. In the reporting period Elected Municipalities Woudenberg, Oldenzaal and Leusden were able to improve their total sustainability score most, 4.6 or more percentage points. The largest reduction in sustainability score among Elected Municipalities was detected in Woudenberg, Leusden and Oldenzaal.

Comparison over the years 2018 and 2022 makes clear that the performance of several goals improved substantially (Goals 1, 3, 4, 5, 7, 8, 9, 12, 13, 14 and 16), but others showed a (small) fallback (Goals 2, 10 and 11). One goal's score did not change (Goal 15). The performance of the group of elected municipalities deviates for some goals from the total group of municipalities. The elected municipalities still outperforms the total group for 13 out of the 14 measured goals, but the differences become smaller.

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1 Introduction

At the request of BNG Bank, Telos -Tilburg University, has provided on 4 October 2018 a Framework document to BNG Bank² that describes the sustainability criteria and selection process of best-in-class Dutch municipalities eligible for a BNG Bank Sustainability Bond 2018. Telos developed this framework based on its National Monitor of Sustainable Municipalities 2018, from which the 5th edition was presented in October 2018. The National Monitor of Sustainable Municipalities was produced for the first time in 2014 on behalf of the Dutch Ministry for Infrastructure and Environment. November 26, 2018, BNG Bank launched its fifth Sustainability Bond, a new EUR 750 million, 7-year benchmark³. Additionally, a second AUD 400 million, 7-year bond was issued based on the same selection of sustainable municipalities in 2018. Both bonds are due November 26th 2025. An important quality indicator of these bonds is the ‘Use of proceeds reporting (UPR)’. BNG Bank intends to include in the UPR a yearly impact report, during the period 2019 – 2025, based on updated data for the sustainability scores of all the 344 Dutch municipalities. The update will give insight in the changes in sustainability scores of the group of 115 Elected Municipalities. Besides this impact report, other aspects are relevant for UPR, such as types of investment projects, governance aspects in relation to the sustainability performance of municipalities, etc. These other aspects are not included in this assessment by Telos, because such data are not yet available in sufficient detail. BNG Bank has asked Telos to provide the yearly updating of the database over the years 2019-2025 and report on the annual changes in scores of the Elected Municipalities. This is the third report on the 2018 bonds, covering the period 2018-2022. It describes how the performance is assessed, the general outcome of the comparison over the years 2018-2022, including the impact on CO2-emissions. Additionally, this reports gives insights in the development of the elected municipalities on the UN Sustainable Development Goals (SDGs).

²<https://www.bngbank.com/Documents/Investors/Sustainability%20Framework%2020218.pdf>

³ <https://www.bngbank.com/funding/sustainability-bond>

2 Description of activities

2.1 Update of database

The main activity to be able to produce an impact report for 2022 on the municipalities elected for the BNG Bank sustainable municipalities bond of 2018 was to update the database for the sustainability assessment of Dutch municipalities used in the National Monitor Sustainable Municipalities 2018. The monitor is basically designed on the basis of the UN and EU concept of sustainable development, which implies that three dimensions of development are considered of equal importance: economic, socio-cultural and ecological. Each of these three 'capitals' are subdivided into themes, called 'stocks', which are operationalized by measuring 'indicators'. Indicator values are assessed against sustainability goals, as described in more detail in the National Monitor report. These sustainability goals have been designed independently from the later agreed UN Sustainable Development Goals (SDGs) or Global Goals in 2015. A detailed analysis of the comparability and differences by Telos, as described in the National Monitor of 2017⁴, has shown that these goals have a wide similarity.

The United Nations SDGs include a set of 17 Global Goals that cover, more categorized from a policy than from a scientific point of view, urgent tasks to be addressed by national governments, local authorities and private actors. A detailed analysis of the differences and overlaps between the triple P approach, used in this framework, and the 17 Goals of the SDGs shows that a large part of the indicators are the same but for some goals clear differences occur. Goal 14 on seas and oceans is for example not included because this is not relevant for municipalities. Governance issues, as implemented by partnerships, have explicitly not yet been included in the triple P approach, amongst others because of the different nature of this domain and because comparable data are difficult to collect. The basic structure of the triple P model will be kept as leading in this impact report, as it better represents a structure that can be founded and explored scientifically. Like in the 2018 framework report, the relevant indicators will also be used to assess the progress on the SDGs for the municipalities.

The updating activities include:

1. Motivation of new sustainability stocks, indicators and goals for indicators to meet new scientific insights and practical developments.
2. Generating most recent data for the indicators used in the National Monitor Sustainable Municipalities from open public sources or by acquiring them.

⁴ Bastiaan Zoeteman, John Dagevos, Rens Mulder, Corné Wentink, Naomi Hoven, Christien Visser, 2017, Nationale Monitor Duurzame Gemeenten 2017, Document number 17.170, Telos, Tilburg University, 29 September; <http://www.telos.nl/publicaties/publicatiesrapporten/default.aspx#folder=894859>

3. Harmonization with national monitoring activities by third parties on theme specific issues such as climate, mobility, health, etc.
4. Adjustment to the outcome of municipality rearrangements, which are continuously resulting in larger municipalities and a lower total number of municipalities.

The National Monitor Sustainable Municipalities 2018 discerned 14 city types. These 14 types have been used for the Framework of the BNG Bank Sustainability Bond of 2018 and are the basis for the performance report at hand.

2.2 Assessment of performance of Elected Sustainable Municipalities

Based on the updated Database, sustainability performance of 115 Elected Municipalities in 2018 will be evaluated and discussed. The group of Elected Municipalities, described in the Framework of the BNG Bank Sustainability Bond of October 2018, has been selected by identifying the 15 best scoring municipalities for each of 14 types of cities, such as ‘agricultural’, ‘old industrial’, ‘shrinking’, etc. municipalities. The 125 Elected Municipalities have been selected out of the total number of 380 municipalities in the Netherlands in 2018. Since 2018, the number of municipalities is decreasing due to rearrangements among the municipalities. In 2022 there are only 344 municipalities. This influenced the selection of 125 municipalities for the bond of 2018 as well. The municipalities of Nuth, Schinnen, Haren, Winsum, Molenwaard, Ferwerderadiel, Geldermalsen, Zuidhorn, Grave and Langedijk are no longer independent entities. They are therefore no longer taken in consideration in this performance report. That means that the group of elected municipalities now consists of 115 municipalities.

Furthermore, the number of indicators was partially expanded due to new possibilities but also reduced due to lack of continued data collection, resulting in 139 indicators now, compared to 126 in 2018. Such changes had to be included in the comparison between 2022 and 2018. Where needed new data for 2018 were separately collected and calculated. The reader is referred to the Method report for the 2022⁵ BNG Bank Sustainability bond, for the details of the amendments made in the calculation of the sustainability scores and how comparability between the years 2018 and 2022 was ascertained.

This assessment includes:

1. A comparison of sustainability scores of Elected Municipalities with the total group of Dutch municipalities for 2018 and 2022.
2. A comparison of sustainability scores for Elected Municipalities between 2018 and 2022, including:
 - a. overall scores
 - b. capital scores, and a selection of:
 - c. stock scores and where useful

⁵ www.hetpon-telos.nl/methodreport2022

- d. indicator scores.
3. A list of Elected Municipalities, which show the largest improvement or reduction in overall score and in CO2 emissions.
4. An overview of the development on the Sustainable Development Goals (SDGs) of the elected municipalities between 2018 and 2022.

In the next chapters, the outcome of these activities is presented. Finally, the overall changes observed for reporting period 2018-2022 will be discussed.

3 Outcome of updating exercise and comparison of 2018 and 2022

3.1 National Monitor Sustainable Municipalities 2022

In November 2022, Het PON & Telos has completed its National Monitor Sustainable Municipalities 2022. The major outcome is shown in table 3.1:

Table 3.1 Sustainability performance of the total group of Dutch municipalities in 2018-2022

Sustainability capital	2018	2019	2020	2021	2022
Total	48.34	48.95	49.24	50.40	50.56
Socio-cultural	49.72	50.25	50.30	50.96	50.58
Ecological	47.92	47.65	47.94	49.57	49.42
Economic	47.40	48.93	49.49	50.67	51.69

In the period 2018-2022, the average overall sustainability score improved from 48.34 till 50.56 percentage points. This was due to improvements in all three capitals.

The socio-cultural capital overall decreased slightly the past year from 50.96 to 50.58. The ecological capital slightly decreased from 49.57 to 49.42 percentage. And economic capital increased from 50.67 till 51.69.

3.2 General characteristics of Elected Municipalities for the BNG Bank Sustainability Bond 2018⁶

The group of Elected Municipalities represents the sum of highest scoring municipalities in each of the 14 types of municipalities considered. They are therefore not a representative sample of the total group of Dutch municipalities. This is illustrated in table 3.2, using municipality size as criterion.

⁶ The calculated differences can be 0.1 percentage point higher or lower due to rounding differences in the calculation. This is the case for all calculated differences in the report.

Table 3.2 Distribution of municipality sizes in the Netherlands and in the group of Elected

Municipality size (number of inhabitants)	Total number of municipalities in the Netherlands	Total number of municipalities in elected group
Less than 50,000	254 (73.8%)	83 (72.2%)
50,000-100,000	58 (16.9%)	16 (13.9%)
More than 100,000	32 (9.3%)	16 (13.9%)

As table 3.2 shows, the size distribution of the elected group of municipalities differs from the average distribution in the country. The small and midsize municipalities are underrepresented and the large municipalities are overrepresented in the elected group. In case the outcome for the elected group is compared with the total group of municipalities this has to be taken into account.

3.3 General performance of Elected Municipalities compared to total group of Dutch Municipalities

BNG Bank has chosen to allocate the proceeds of the Sustainability Bond to the best performing municipalities in their class as instrument for several reasons. These include:

- Highlighting the importance of sustainable development to municipalities,
- Enabling investors that want to see their capital used for investments in municipalities that have experience in improving sustainability, and
- Increasing awareness of successful strategies used in high scoring municipalities, etc.

It would be welcome, against this background, if the comparison between performance of the group of Elected Municipalities and the total group of Dutch municipalities would show that the Elected Municipalities outperform the others over the years. Yet, it may not be as simple as that. Best performing municipalities may not have as much opportunities left for further improvement as low performing municipalities, which can more easily improve their performance.

Table 3.3 gives a summary of the overall differences between 2018 and 2022 for the total group of Dutch municipalities and the group of Elected Municipalities. It shows that the general trend, an improvement of the overall score, happens in both groups (2.4/2.2 percentage points).

Table 3.3 Sustainability performance of Elected Municipalities and of the total group of Dutch municipalities in 2018 compared to 2022 (percentage points)

Sustainability capital	Elected 2018	Total 2018	Elected 2022	Total 2022	Elected: Difference 2018-2022	Total: Difference 2018-2022 ⁷
Total	50.5	48.3	52.9	50.6	2.4	2.2
Socio-cultural	52.3	49.7	53.3	50.6	1.0	0.9
Ecological	49.4	47.9	51.5	49.4	2.1	1.5
Economic	49.9	47.4	54.1	51.7	4.1	4.3

The Elected Municipalities continued to outperform the total group of municipalities with 2.3 percentage points (52.9 vs 50.6), as listed in table 1. Both groups of municipalities show an improvement of the overall score with more than 2.0 percentage points. Largest improvements occurred this year for the economic capital (4.1/4.3 percentage points), while those for the ecological and socio-cultural capital were smaller (1.0/0.9 and 2.1/1.5 percentage points).

In the next paragraph, the more detailed stock scores are considered.

3.4 Changes in stock scores of Elected and the total group of municipalities

A closer look at the level of stocks, see table 3.4, shows that differences between the years show a similar pattern in both groups of municipalities.

Table 3.4 Differences in sustainability scores (percentage points) of stocks between 2018 and 2022 for the group of elected Municipalities and all Dutch municipalities

Sustainability stock	Difference 2018-2022 of 115 Elected Municipalities	Difference 2018-2022 of all 344 municipalities
Socio-cultural		
Arts & culture	0.5	0.4
Economic participation	2.1	2.1
Education	-0.3	-0.5
Health	0.4	-0.2
Housing	0.4	2.6
Lifestyle & health	2.5	2.0
Political Participation	4.4	3.2
Residential environment	-1.4	-1.7
Safety	3.0	2.9
Social participation	-2.0	-2.2

Ecological		
Air	1.9	1.7
Annoyance and external safety	-0.9	-0.9
Energy	7.1	7.2
Nature & landscape	0.0	0.0
Soil	1.8	-0.2
Resources & waste	0.1	-0.2
Water	4.6	2.9
Economic		
Competitiveness	7.5	7.8
Infrastructure & mobility	5.8	5.2
Knowledge	3.2	3.4
Labor	6.1	6.5
Spatial location conditions	-1.9	-1.5

Socio-cultural stocks

Among socio-cultural stocks, differences between both groups of municipalities were small. Most striking are the differences in improvement in the stock 'Housing: the elected groups score improved with 0.4 percentage points and the total group with 2.6 percentage points. The stock 'Political participation' improved for the elected group with 4.4 percentage points and for the total group with 3.2 percentage points.

Ecological stocks

Also here, the group of Elected Municipalities shows a similar pattern as the total group of municipalities, with large improvements over the period 2018-2022 for the stocks of 'energy' and 'water'. These are priorities of the national government: climate change and circular economy. The decline in 'soil' is only a trend in the total group of municipalities.

Economic stocks

Elected Municipalities improved practically as much as the total group of municipalities. The biggest improvement is seen for 'competitiveness', but all stocks, except from 'spatial location conditions' have shown quite large improvements.

4 Elected Municipalities showing largest improvement or reduction in sustainability score in 2018-2022 depending on city typology

In this chapter, a closer examination of the improvements or reductions in total sustainability score of individual Elected Municipalities will be discussed. The assessment will be presented for each of the 14 types of municipalities that are discerned in the Framework for the BNG Bank Sustainability Bond of 2018: agricultural-, center-, green-, growth-, historic-, old industrial-, mid-sized-, New Town-, shrink-, small, residential, tourist, work- and 100,000plus municipalities. The list of best-in-class municipalities in each type of municipalities will be presented as described in the framework document. The scores for 2018 have in this assessment been corrected for additional indicators used in 2022 to make them comparable with the 2022 data. The results are therefore sometimes differing from those given in the 2018 Framework document.

4.1 Elected agricultural municipalities

Table 4.1 presents the 15 best-in-class municipalities of the agricultural type, their reconstructed 2018 scores and the 2022 scores for total sustainability. All municipalities improved over the past four years. Eemnes, Dinkelland and Wierden improved the most in the period 2018-2022. Overall, the score of the group of elected agricultural municipalities improved 2.4 percentage point since 2018.

Table 4.1 Improvements and reductions in total sustainability scores of elected agricultural municipalities over 2018-2022

Agricultural municipality	Sustainability score 2018	Sustainability score 2022	Difference
Eemnes	49.6	53.1	3.5
Dinkelland	52.4	55.7	3.3
Wierden	51.0	54.3	3.3
Montfoort	48.3	51.3	3.0
Bunnik	50.3	53.0	2.7
Raalte	51.0	53.6	2.6
Staphorst	51.8	54.3	2.5
Voorst	51.3	53.7	2.4
Oost Gelre	52.1	54.5	2.4
Zwartewaterland	50.9	53.2	2.3
Dalfsen	52.7	54.8	2.1
Olst-Wijhe	50.4	52.2	1.8
Zoeterwoude	50.7	52.3	1.6

Midden-Delfland	54.0	55.1	1.1
Eijsden-Margraten	49.5	50.2	0.7
Average	51.1	53.4	2.4

4.2 Elected center municipalities

As table 4.2 shows, all elected municipalities did improve their sustainability score over the past four years. Zwolle improved the most with 3.4 percentage points, followed by Utrecht and Ede.

Table 4.2 Improvements in total sustainability scores of elected center municipalities over 2018-2022

Center municipality	Sustainability score 2018	Sustainability score 2022	Difference
Zwolle	51.6	55.0	3.4
Utrecht	51.2	54.5	3.3
Ede	50.7	53.8	3.1
Deventer	51.2	53.9	2.7
Apeldoorn	51.1	53.5	2.4
Hilversum	49.3	51.5	2.2
Castricum	52.2	54.2	2.0
Nijmegen	52.2	54.0	1.8
Groningen	51.3	53.0	1.7
Leiden	51.7	53.2	1.5
Katwijk	51.8	53.1	1.3
Middelburg	48.1	49.4	1.3
Delft	53.0	54.1	1.1
Westland	49.2	50.3	1.1
Amsterdam	49.9	50.3	0.4
Gooise Meren	51.1	51.4	0.3
Average	51.0	52.8	1.8

4.3 Elected green municipalities

Elected green municipalities improved on average 2.9 percentage points over the last years.. Leusden improved the most with 4.6 percentage points, as shown in Table 4.3, followed by Rozendaal and Leusden.

Table 4.3 Improvements and reductions in total sustainability scores of elected green municipalities over 2018-2022

Green municipality	Sustainability score 2018	Sustainability score 2022	Difference
Leusden	51.6	56.2	4.6
Rozendaal	49.3	53.8	4.5
Baarn	49.7	53.7	4.0
Utrechtse Heuvelrug	48.5	52.1	3.6
Heeze-Leende	53.2	56.5	3.3
Bloemendaal	52.0	55.3	3.3
Ede	50.7	53.8	3.1
Barneveld	50.8	53.6	2.8
Elburg	51.1	53.9	2.8
Waalre	53.2	55.9	2.7
Nunspeet	52.0	54.3	2.3
Mook en Middelaar	53.1	55.2	2.1
Wassenaar	50.8	52.8	2.0
Ermelo	51.8	53.6	1.8
Putten	51.0	51.7	0.7
Average	51.3	54.2	2.9

4.4 Elected growth municipalities

The elected growth municipalities showed on average an improvement of 2.5 percentage points since 2018. All municipalities improved their score. Woudenberg improved the most with 5.1 percentage points, followed by Wageningen and Houten.

Table 4.4 Improvements and reductions in total sustainability scores of elected growth municipalities over 2018-2022

Growth municipality	Sustainability score 2018	Sustainability score 2022	Difference
Woudenberg	49.2	54.3	5.1
Wageningen	53.0	56.5	3.5
Houten	52.4	55.9	3.5
Heeze-Leende	53.2	56.5	3.3
Bloemendaal	52.0	55.3	3.3
Bunnik	50.3	53.0	2.7
Staphorst	51.8	54.3	2.5
Ameland	51.6	53.7	2.1
Dalfsen	52.7	54.8	2.1
Oegstgeest	53.3	55.3	2.0
Bladel	51.3	52.9	1.6

Voorschoten	53.1	54.5	1.4
Midden-Delfland	54.0	55.1	1.1
Scherpenzeel	49.5	50.5	1.0
Average	52.0	54.5	2.5

4.5 Elected historic municipalities

One elected municipalities did not improve its sustainability score since 2018, which is Waterland. Schiermonnikoog improved its score the past four years the most, with 3.7 percentage points, followed by Vlieland and Lopik. The average score improved with 2.1 percentage points, as presented in Table 4.5.

Table 4.5 Improvements and reductions in total sustainability scores of elected historic municipalities over 2018-2022

Historic municipality	Sustainability score 2018	Sustainability score 2022	Difference
Schiermonnikoog	48.2	51.9	3.7
Vlieland	52.6	56.2	3.6
Lopik	49.5	52.8	3.3
Utrecht	51.2	54.5	3.3
Oudewater	47.0	49.8	2.8
Bronckhorst	52.6	55.2	2.6
Staphorst	51.8	54.3	2.5
Ameland	51.6	53.7	2.1
Leiden	51.7	53.2	1.5
Delft	53.0	54.1	1.1
Eijsden-Margraten	49.5	50.2	0.7
Kampen	51.3	51.9	0.6
Waterland	51.1	50.6	-0.5
Average	50.9	53.0	2.1

4.6 Elected mid-sized municipalities

All municipalities improved their sustainability scores in the past two years. Table 4.6 shows that mid-sized municipalities improved their sustainability scores on average with 2.2 percentage points since 2018. Heerenveen improved its score the most, with 3.8 percentage points, followed by Hardenberg and Woerden.

Table 4.6 Improvements and reductions in total sustainability scores of elected mid-sized municipalities over 2018-2022

Mid-sized municipality	Sustainability score 2018	Sustainability score 2022	Difference
Heerenveen	48.9	52.7	3.8
Hardenberg	49.0	52.6	3.6
Woerden	51.2	54.4	3.2
Zeist	47.9	51.0	3.1
Veenendaal	48.6	51.6	3.0
Barneveld	50.8	53.6	2.8
Deventer	51.2	53.9	2.7
Krimpenerwaard	50.1	52.6	2.5
Meierijstad	48.4	50.8	2.4
Hilversum	49.3	51.5	2.2
Doetinchem	48.2	50.4	2.2
Pijnacker-Nootdorp	51.6	53.0	1.4
Katwijk	51.8	53.1	1.3
Kampen	51.3	51.9	0.6
Amstelveen	52.0	52.5	0.5
Gooise Meren	51.1	51.4	0.3
Average	50.1	52.3	2.2

4.7 Elected New Town municipalities

Elected New Town municipalities improved their score with on average 2.4 percentage points (see table 4.7). Culemborg is on top of the list of improvement, followed by Duiven and Best. Urk did not improve its score.

Table 4.7 Improvements and reductions in total sustainability scores of elected New Town municipalities over 2018-2022

New Town municipality	Sustainability score 2018	Sustainability score 2022	Difference
Culemborg	50.5	54.6	4.1
Duiven	47.0	50.8	3.8
Best	49.6	53.4	3.8
Renswoude	49.0	52.8	3.8
Eemnes	49.6	53.1	3.5
Houten	52.4	55.9	3.5
Tubbergen	50.1	53.5	3.4
Barneveld	50.8	53.6	2.8
Zeewolde	50.1	52.1	2.0

Hendrik-Ido-Ambacht	50.4	52.2	1.8
Heumen	52.5	53.7	1.2
Midden-Delfland	54.0	55.1	1.1
Koggenland	49.3	49.1	-0.2
Urk	51.5	50.9	-0.6
Average	50.5	52.9	2.4

4.8 Elected old industrial municipalities

Elected old industrial municipalities scored on average 2.5 percentage points higher over the reporting period, as shown in Table 4.8. The score of Oostzaan decreased with 0.3 percentage points. Hattem improved the most with 4.3 percentage points.

Table 4.8 Improvements and reductions in total sustainability scores of elected old industrial municipalities over 2018-2022

Old industrial municipality	Sustainability score 2018	Sustainability score 2022	Difference
Hattem	50.7	55.0	4.3
Oisterwijk	48.2	52.5	4.3
Rijssen-Holten	50.4	54.2	3.8
Best	49.6	53.4	3.8
Losser	50.3	53.8	3.5
Wierden	51.0	54.3	3.3
Heusden	48.5	51.5	3.0
Waalre	53.2	55.9	2.7
Hellendoorn	50.4	52.7	2.3
Brummen	51.0	53.1	2.1
Bergeijk	52.0	53.9	1.9
Nuenen, Gerwen en Nederwetten	52.7	54.6	1.9
Landsmeer	48.5	50.3	1.8
Bladel	51.3	52.9	1.6
Putten	51.0	51.7	0.7
Oostzaan	51.2	50.7	-0.5
Average	50.6	53.2	2.5

4.9 Elected residential municipalities

Residential municipalities are a well performing elected group of municipalities when comparing the scores in 2018 with those of 2022, resulting in an average

increased score of 2.2 percentage points (Table 4.9). Rozendaal improved most with 4.5 percentage points in the sustainability score. Waterland its sustainability score decreased with 0.5 percentage points.

Table 4.9 Improvements and reductions in total sustainability scores of elected old industrial municipalities over 2018-2022

Residential municipality	Sustainability score 2018	Sustainability score 2022	Difference
Rozendaal	49.3	53.8	4.5
Buren	48.0	51.6	3.6
Bloemendaal	52.0	55.3	3.3
Heusden	48.5	51.5	3.0
Waalre	53.2	55.9	2.7
Wijk bij Duurstede	50.6	52.8	2.2
Mook en Middelaar	53.1	55.2	2.1
Castricum	52.2	54.2	2.0
Heiloo	50.6	52.5	1.9
Voorschoten	53.1	54.5	1.4
Heumen	52.5	53.7	1.2
Eijsden-Margraten	49.5	50.2	0.7
Waterland	51.1	50.6	-0.5
Average	51.1	53.2	2.2

4.10 Elected shrink municipalities

The elected shrink municipalities improved with 2.2 percentage points on average the last three years (see Table 4.10). None of the municipalities decreased in its sustainability score. Berkelland improved the most with 3.1 percentage points.

Table 4.10 Improvements and reductions in total sustainability scores of elected shrink municipalities over 2018-2022

Shrink municipality	Sustainability score 2018	Sustainability score 2022	Difference
Berkelland	49.9	53.0	3.1
Voerendaal	47.3	49.9	2.6
Bronckhorst	52.6	55.2	2.6
Aalten	50.0	52.5	2.5
Gulpen-Wittem	46.7	49.1	2.4
Leudal	47.7	50.0	2.3
Mook en Middelaar	53.1	55.2	2.1
Bergen	50.2	52.3	2.1
Valkenburg aan de Geul	48.6	49.6	1.0

Meerssen	49.1	50.1	1.0
Average	49.5	51.7	2.2

4.11 Elected small municipalities

The group of small municipalities has improved its score in 2022 by 2.4 percentage points on average. Rozendaal leads this group by improving 4.5 percentage points, while Vlieland lost some of its earlier score.

Table 4.11 Improvements and reductions in total sustainability scores of elected old industrial municipalities over 2018-2022

Small municipality	Sustainability score 2018	Sustainability score 2022	Difference
Rozendaal	49.3	53.8	4.5
Vlieland	52.6	56.2	3.6
Houten	52.4	55.9	3.5
Heeze-Leende	53.2	56.5	3.3
Bloemendaal	52.0	55.3	3.3
Bunnik	50.3	53.0	2.7
Wijk bij Duurstede	50.6	52.8	2.2
Mook en Middelaar	53.1	55.2	2.1
Ameland	51.6	53.7	2.1
Dalfsen	52.7	54.8	2.1
Oegstgeest	53.3	55.3	2.0
Bladel	51.3	52.9	1.6
Voorschoten	53.1	54.5	1.4
Heumen	52.5	53.7	1.2
Midden-Delfland	54.0	55.1	1.1
Average	52.1	54.6	2.4

4.12 Elected tourist municipalities

The sustainability score of the elected tourist type of municipalities has improved on average with 1.8 percentage points. (see Table 4.12). The biggest improvement over time was found for Schiermonnikoog, while two municipalities decreased their score (Oostzaan and Waterland).

Table 4.12 Improvements and reductions in total sustainability scores of elected tourist municipalities over 2018-2022

Tourist municipality	Sustainability score 2018	Sustainability score 2022	Difference
Schiermonnikoog	48.2	51.9	3.7
Noordwijk	52.3	55.9	3.6
Vlieland	52.6	56.2	3.6
Hilvarenbeek	52.3	54.5	2.2
Mook en Middelaar	53.1	55.2	2.1
Ameland	51.6	53.7	2.1
Wassenaar	50.8	52.8	2.0
Bergeijk	52.0	53.9	1.9
Landsmeer	48.5	50.3	1.8
Groningen	51.3	53.0	1.7
Terschelling	52.1	53.6	1.5
Veere	51.6	52.5	0.9
Eijsden-Margraten	49.5	50.2	0.7
Waterland	51.1	50.6	-0.5
Oostzaan	51.2	50.7	-0.5
Average	51.2	53.0	1.8

4.13 Elected work municipalities

Elected work municipalities performed well with an improvement of 2.5 percentage points on average, as illustrated in table 4.13. Oldenzaal showed a large improved of 4.6 percentage points.

Table 4.13 Improvements and reductions in total sustainability scores of elected work municipalities over 2018-2022

Work municipality	Sustainability score 2018	Sustainability score 2022	Difference
Oldenzaal	50.7	55.3	4.6
Duiven	47.0	50.8	3.8
Best	49.6	53.4	3.8
Noordwijk	52.3	55.9	3.6

Zwolle	51.6	55.0	3.4
Utrecht	51.2	54.5	3.3
Veldhoven	50.1	53.2	3.1
Barneveld	50.8	53.6	2.8
Son en Breugel	50.1	52.6	2.5
Apeldoorn	51.1	53.5	2.4
Ouder-Amstel	50.5	52.5	2.0
Groningen	51.3	53.0	1.7
Leiden	51.7	53.2	1.5
Westland	49.2	50.3	1.1
Amstelveen	52.0	52.5	0.5
Amsterdam	49.9	50.3	0.4
Average	50.6	53.1	2.5

4.14 Elected 100,000plus municipalities

The, for Dutch dimensions, relative large elected 100,000plus performed well with an average improvement of 1.7 percentage points from 2018 to 2022. Amersfoort improved most followed by Eindhoven and Zwolle.

Table 4.14 Improvements and reductions in total sustainability scores of elected 100,000plus over 2018-2022

100,000plus municipality	Sustainability score 2018	Sustainability score 2022	Difference
Amersfoort	50.3	54.4	4.1
Eindhoven	50.1	53.7	3.6
Zwolle	51.6	55.0	3.4
Utrecht	51.2	54.5	3.3
Ede	50.7	53.8	3.1
Apeldoorn	51.1	53.5	2.4
Arnhem	49.2	51.0	1.8
Nijmegen	52.2	54.0	1.8
Groningen	51.3	53.0	1.7
's-Hertogenbosch	48.9	50.5	1.6
Leiden	51.7	53.2	1.5
Breda	49.6	50.7	1.1
Delft	53.0	54.1	1.1
Westland	49.2	50.3	1.1
Amsterdam	49.9	50.3	0.4
Average	50.7	52.8	2.1

4.15 Summary of score changes of Elected Municipalities and their typology

Table 4.15 gives an overview of the average performance of the 14 groups of municipalities. Highest improvements in percentage points were found in green municipalities, with 2.9 percentage points. Highest sustainability scores were measured in small and growth municipalities (54.6/54.5 percentage points).

Table 4.15 Changes in total sustainability scores of 14 types of elected municipalities over 2018-2022

Type of municipality	Sustainability score 2018	Sustainability score 2022	Difference
Small municipalities	52.1	54.6	2.4
Mid-sized municipalities	50.1	52.3	2.2
100.000plus municipality	50.7	52.8	2.1
Agricultural municipality	51.1	53.4	2.4
Center municipality	51.0	52.8	1.8
Former industrial municipality	50.6	53.2	2.5
Green municipality	51.3	54.2	2.9
Growth municipalities	52.0	54.5	2.5
Historic municipalities	50.9	53.0	2.1
New Town municipality	50.5	52.9	2.4
Residential municipalities	51.1	53.2	2.2
Shrink municipality	49.5	51.7	2.2
Touristic municipalities	51.2	53.0	1.8
Work municipality	50.6	53.1	2.5

5 Overall outcome for Elected Municipalities including their CO2-emission scores in 2018–2022

This chapter presents a final overview of the performance of the Elected Municipalities, independent from their typology.

The green bonds were started by the World Bank to help promote the transition to a low carbon economy, in order to slow down further climate change. Considering this background, this chapter includes a description of the performance of the Elected Municipalities in relation to CO2-emissions. Although they are included as indicator in the ecological capital, this aspect will be highlighted as an element of special interest, being often the key factor for green bond and sustainability bond investors.

5.1 General outcome of improving and regressing Elected Municipalities

Among Elected Municipalities more than 98% had similar or higher sustainability scores in 2022 compared to 2019 (see also Annex 1).

Tables 5.1 and 5.2 show Elected Municipalities for which its sustainability score changed most or least favorably. The best performing municipality in this respect among Elected Municipalities is Woudenberg, followed by Oldenzaal and Hattem.

Table 5.1 Ten Elected Municipalities improving sustainability score most in the period 2018–2022

Elected municipality	Typology	Total score 2018	Total score 2022	Difference
Woudenberg	Large, Centre, Growth, Historic, Tourist, Work	49.2	54.3	5.1
Leusden	Large, Centre, Growth, Historic, Tourist, Work	51.6	56.2	4.6
Oldenzaal	Small, Growth	50.7	55.3	4.6
Rozendaal	Small, Green, Shrink, Tourist	49.3	53.8	4.5
Hattem	Small, Former industrial, Growth, Residential, Tourist	50.7	55	4.3
Oisterwijk	Small, Green, Tourist	48.2	52.5	4.3
Amersfoort	Large, Centre, Growth, Work	50.3	54.4	4.1
Culemborg	Medium, Growth, Work	50.5	54.6	4.1
Baarn	Small, Former industrial	49.7	53.7	4
Rijssen-Holten	Medium, Centre, Green, Growth	50.4	54.2	3.8

The largest reduction in sustainability score among Elected Municipalities was detected in Urk, followed by Oostzaan, Waterland and Koggenland.

Table 5.2 Ten Elected Municipalities with largest declining sustainability score in the period 2018-2022

Municipality	Typology	Total score 2018	Total score 2022	Difference
Urk	Small, Growth, Historic, Tourist	51.5	50.9	-0.6
Oostzaan	Small, Historic, Tourist	51.2	50.7	-0.5
Waterland	Small, Agricultural	51.1	50.6	-0.5
Koggenland	Small, Tourist	49.3	49.1	-0.2
Gooise Meren	Small, Former industrial, Growth, Tourist	51.1	51.4	0.3
Amsterdam	Small, Growth	49.9	50.3	0.4
Amstelveen	Small, Green, Residential	52	52.5	0.5
Kampen	Small, Former industrial, Residential	51.3	51.9	0.6
Eijsden-Margraten	Small, Agricultural	49.5	50.2	0.7
Putten	Small, Agricultural, Residential	51	51.7	0.7

5.2 CO2-emission score performance of Elected Municipalities

Finally, the outcome of the CO2-emission assessment of Elected Municipalities will be discussed. This is one of the key transitions to which national governments have committed themselves in the framework of the UN Climate Change Convention and particularly since the 2015 Paris Agreement. But also individual municipalities have similar commitments, e.g. in the framework of the Covenant of Mayors to combat climate change. In the Netherlands the Association of Dutch Municipalities (VNG) has signed an agreement in 2013 with the national government and other parties to substantially reduce CO2-emissions the coming years. New agreements are underway.

Data on CO2 emissions are available for each municipality via the web-portal of the Dutch Emissions Authority. They calculate the CO2 emissions every five years, including the most recent two years. At this moment, data are available for 1990-2015 in a five-year interval, supplemented with the two most recent years in their database (2019 and 2020). In this impact report, the reduction over the two most recent years has been used.

A closer look at the CO2 reductions shows that the group of Elected Municipalities realized a reduction in CO2 emissions over the last years; the CO2 emissions decreased with 12.9%. The other municipalities realized a smaller reduction of 4.5%. The outcome of this analysis is shown in table 5.3.

Table 5.3 CO2 reductions in different time periods of the Elected Municipalities and the total group of municipalities

Considered group of municipalities	1990-2019	2010-2020	2019-2020
Elected (115)	-28,9%	-31,7%	-12,9%
Others	2,4%	-13,8%	-4,5%
Total (344)	-5,3%	-17,8%	-6,2%

The highest reduction was found for Amsterdam, Leiden and Wageningen. Table 5.4 shows that Ameland, Schiermonnikoog and Zoeterwoude noted the largest increase in CO2 emissions. CO2 emission changes for all municipalities over the last year are given in Annex 2.

Table 5.4 Ten Elected Municipalities with most and least reduction in CO2-emissions over the last year (equals measuring years 2018-2019)

Elected municipality	Emission change over measuring years 2018-2019	Elected municipality	Emission change over measuring years 2018-2019
Amsterdam	-36.4	Ameland	18.9
Leiden	-18.0	Schiermonnikoog	18.8
Wageningen	-15.7	Zoeterwoude	10.2
Bergen (NH.)	-15.4	Hilvarenbeek	10.0
Landsmeer	-15.2	Oostzaan	8.0
Wassenaar	-15.2	Scherpenzeel	8.0
Breda	-15.0	Rozendaal	6.7
Amstelveen	-14.7	Heusden	5.8
Rijssen-Holten	-14.3	Olst-Wijhe	5.0
Hilversum	-14.3	Buren	4.2

6 SDGs scores

In the 2018 framework report, a method was introduced to measure the achievement of the 2015 UN Sustainable Development Goals (SDGs). Showing the impacts of societal activities in terms of their contribution to the SDGs, is recently becoming a must for many organizations and particularly for banks and pension funds. These have been active since 2015 to develop a so-called 'taxonomy on Sustainable Development Investments (SDIs)' that translates the SDGs into investable opportunities from the perspective of Asset Owners⁸.

An elaborated description of the methodology used to calculate the SDG scores can be found in the Method report 2022⁹. In essence it is based on aggregating elements of the sustainability scores in a way consistent with the definitions of the SDGs.

6.1 Progress of the elected municipalities towards the SDGs

Comparison over the years 2018 and 2022, as shown in table 6.1, makes clear that the performance of several goals improved substantially (Goals 1, 3, 4, 5, 7, 8, 9, 12, 13, 14 and 16), but others showed a (small) fallback (Goals 2, 10 and 11). One goal's score did not change (Goal 15).

⁸ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en

⁹ www.hetpon-telos.nl/methodreport2022

SDG	All municipalities (n=344)						Elected municipalities (n=115)					
	2018	2019	2020	2021	2022	Difference 2018-2022	2018	2019	2020	2021	2022	Difference 2018-2022
1. No Poverty	41.3	41.7	45.0	48.1	49.9	8.7	46.9	47.6	51.3	54.6	56.1	9.2
2. Zero Hunger	46.7	44.5	44.5	44.4	44.3	-2.4	47.9	45.8	45.8	45.8	45.7	-2.2
3. Good Health and Well-being	45.9	45.8	47.7	47.4	47.4	1.5	49.5	49.3	51.1	51.0	50.9	1.5
4. Quality Education	51.2	50.7	50.4	54.0	51.1	-0.2	54.2	54.2	53.5	56.9	54.4	0.1
5. Gender Equality	65.7	67.0	68.1	67.2	69.1	3.4	66.2	67.4	68.6	67.4	69.6	3.4
6. Clean Water and Sanitation												
7. Affordable and Clean Energy	39.9	35.6	37.3	39.3	40.4	0.5	41.3	36.7	38.5	40.5	41.5	0.2
8. Decent Work and Economic Growth	49.6	50.9	51.5	51.1	52.3	2.7	51.6	52.6	53.3	52.8	53.6	2.0
9. Industry, Innovation and Infrastructure	40.6	41.2	41.0	44.8	45.9	5.3	42.0	42.7	42.0	46.6	47.7	5.7
10. Reduced Inequalities	45.7	44.9	45.1	45.1	45.3	-0.3	45.5	44.6	42.9	42.9	45.0	-0.5
11. Sustainable Cities and Communities	49.2	50.7	49.2	49.0	48.9	-0.3	49.8	51.3	50.0	49.7	49.6	-0.2
12. Responsible Consumption and Production	51.4	52.7	53.0	54.3	55.1	3.8	53.5	55.1	55.3	56.2	57.5	4.0
13. Climate Action	45.3	45.1	45.5	46.1	46.2	0.9	46.6	46.3	46.8	47.4	47.5	1.0
14. Life below Water	40.4	39.7	38.9	42.3	42.4	2.1	42.0	41.7	40.6	45.1	45.3	3.3
15. Life on Land	46.6	46.6	46.6	46.6	46.6	0.0	49.5	49.5	49.5	49.5	49.5	0.0
16. Peace, Justice and Strong Institutions	44.6	48.5	48.5	50.1	50.5	5.9	47.6	52.1	52.5	53.8	54.0	6.4
17. Partnerships for the Goals												

Table 6.1 SDG scores for all (n=344) municipalities and the elected municipalities (n=115) for 2018-2022

As shown in table 6.1, 2 of the 17 SDGs could not be measured because of lack of data, or because they are not relevant for municipalities. These are nr. 6 (Clean water and sanitation) and nr. 17 (Partnerships for the Goals).

6.2 Differences between the elected and the total group of municipalities on the SDGs

The performance of the group of elected municipalities deviates for some goals from the total group of municipalities. The elected municipalities still outperforms the total group for 13 out of the 14 measured goals, but the differences become smaller.

The biggest difference in the 2022 scores can be found for goal 1, No poverty. The elected group scores 6.1 percentage points higher than the total group. The elected group outperforms the total group with more than 3 percentage points at goals 3 (Good health and well-being), 4 (Quality education) and 16 (Peace, Justice and Strong Institutions). The total group outperforms the elected group in score for Goal 10, Reduced inequalities, with 0.3 percentage points. Between 2018 and 2022, Goals 1, 9, 12 and 16 improved the most, for both the total group and the elected group. The scores on Goals 2, 10, and 11 decreased for both groups of municipalities.

More information about the method of analyses on the SDGs can be found in the 2022 method report for municipalities¹⁰.

¹⁰ www.hetpon-telos.nl/methodreport2022

7 Discussion and overview of outcome of assessment period 2018–2022

The general trend, an improvement of the overall score is similar in both groups. The Elected Municipalities continued to outperform the total group of municipalities with 2.3 percentage points (52.9 vs 50.6), as listed in table 1. Both groups of municipalities show an improvement of the overall score with 2.2-2.4 percentage points. Largest improvements occurred this year for the economic capital (4.1/4.3 percentage points), while those for the ecological and socio-cultural capital were smaller (2.1/1.5 and 1.0/0.9 percentage points).

A closer look at the CO₂ reductions shows that the group of Elected Municipalities realized a reduction in CO₂ emissions over the last years; the CO₂ emissions decreased with 12.9%. The other municipalities realized a smaller reduction of 4.5%.

Scores of municipalities are rather dynamic from year to year, although major differences and advantages among municipalities are of a structural nature. The best performing municipality in this respect among Elected Municipalities is Woudenberg, followed by Oldenzaal and Hattem. The largest reduction in sustainability score among Elected Municipalities was detected in Urk, followed by Oostzaan, Waterland and Koggenland.

Comparison over the years 2018 and 2022 makes clear that the performance of several goals improved substantially (Goals 1, 3, 4, 5, 7, 8, 9, 12, 13, 14 and 16), but others showed a (small) fallback (Goals 2, 10 and 11). One goal's score did not change (Goal 15). The performance of the group of elected municipalities deviates for some goals from the total group of municipalities. The elected municipalities still outperforms the total group for 13 out of the 14 measured goals, but the differences become smaller.

The biggest difference in the 2022 scores can be found for goal 1, No poverty. The elected group scores 6.1 percentage points higher than the total group. The elected group outperforms the total group with more than 3 percentage points at goals 3 (Good health and well-being), 4 (Quality education) and 16 (Peace, Justice and Strong Institutions). The total group outperforms the elected group in score for Goal 10, Reduced inequalities, with 0.3 percentage points. Between 2018 and 2022, Goals 1, 9, 12 and 16 improved the most, for both the total group and the elected group. The scores on Goals 2, 10, and 11 decreased for both groups of municipalities.

It is not always the best scoring municipality in a certain class that shows the biggest improvement of its score in the next year. The advantage of a high score on sustainability may turn into a (temporary) disadvantage under certain circumstances. Yet, the differences in position on a scoring list and the magnitude of improvement or fallback from year to year provide relevant incentives for municipalities to better understand their position, learn from each other, reduce

vulnerabilities and develop new approaches to existing and new challenges. Impact reporting of Sustainability Bonds stimulates elected and other municipalities to invest proceeds from the bonds and other resources in most effective operational and innovative structural activities to improve sustainability.

Annex A: Overview of the differences in total sustainability scores in 2018 and 2022 for all 115 Elected Municipalities

Municipality	Total sustainability score 2018	Total sustainability score 2022	Difference 2018-2022
Woudenberg	49.2	54.3	5.1
Leusden	51.6	56.2	4.6
Oldenzaal	50.7	55.3	4.6
Rozendaal	49.3	53.8	4.5
Hatterm	50.7	55	4.3
Oisterwijk	48.2	52.5	4.3
Amersfoort	50.3	54.4	4.1
Culemborg	50.5	54.6	4.1
Baarn	49.7	53.7	4
Rijssen-Holten	50.4	54.2	3.8
Heerenveen	48.9	52.7	3.8
Renswoude	49	52.8	3.8
Best	49.6	53.4	3.8
Duiven	47	50.8	3.8
Schiermonnikoog	48.2	51.9	3.7
Noordwijk	52.3	55.9	3.6
Vlieland	52.6	56.2	3.6
Utrechtse Heuvelrug	48.5	52.1	3.6
Buren	48	51.6	3.6
Eindhoven	50.1	53.7	3.6
Hardenberg	49	52.6	3.6
Wageningen	53	56.5	3.5
Houten	52.4	55.9	3.5
Eemnes	49.6	53.1	3.5
Losser	50.3	53.8	3.5
Zwolle	51.6	55	3.4
Tubbergen	50.1	53.5	3.4
Dinkelland	52.4	55.7	3.3
Wierden	51	54.3	3.3
Bloemendaal	52	55.3	3.3
Lopik	49.5	52.8	3.3
Heeze-Leende	53.2	56.5	3.3
Utrecht	51.2	54.5	3.3
Woerden	51.2	54.4	3.2
Zeist	47.9	51	3.1
Berkelland	49.9	53	3.1
Veldhoven	50.1	53.2	3.1

Ede	50.7	53.8	3.1
Veenendaal	48.6	51.6	3
Montfoort	48.3	51.3	3
Heusden	48.5	51.5	3
Barneveld	50.8	53.6	2.8
Oudewater	47	49.8	2.8
Elburg	51.1	53.9	2.8
Bunnik	50.3	53	2.7
Waalre	53.2	55.9	2.7
Deventer	51.2	53.9	2.7
Bronckhorst	52.6	55.2	2.6
Voerendaal	47.3	49.9	2.6
Raalte	51	53.6	2.6
Aalten	50	52.5	2.5
Son en Breugel	50.1	52.6	2.5
Staphorst	51.8	54.3	2.5
Krimpenerwaard	50.1	52.6	2.5
Voorst	51.3	53.7	2.4
Gulpen-Wittem	46.7	49.1	2.4
Meerijstad	48.4	50.8	2.4
Apeldoorn	51.1	53.5	2.4
Oost Gelre	52.1	54.5	2.4
Hellendoorn	50.4	52.7	2.3
Zwartewaterland	50.9	53.2	2.3
Leudal	47.7	50	2.3
Nunspeet	52	54.3	2.3
Hilversum	49.3	51.5	2.2
Hilvarenbeek	52.3	54.5	2.2
Wijk bij Duurstede	50.6	52.8	2.2
Doetinchem	48.2	50.4	2.2
Mook en Middelaar	53.1	55.2	2.1
Ameland	51.6	53.7	2.1
Brummen	51	53.1	2.1
Bergen (NH.)	50.2	52.3	2.1
Dalfsen	52.7	54.8	2.1
Oegstgeest	53.3	55.3	2
Castricum	52.2	54.2	2
Wassenaar	50.8	52.8	2
Ouder-Amstel	50.5	52.5	2
Zeewolde	50.1	52.1	2
Nuene, Gerwen en Nederwetten	52.7	54.6	1.9
Bergeijk	52	53.9	1.9

Heiloo	50.6	52.5	1.9
Ermelo	51.8	53.6	1.8
Olst-Wijhe	50.4	52.2	1.8
Hendrik-Ido-Ambacht	50.4	52.2	1.8
Nijmegen	52.2	54	1.8
Arnhem	49.2	51	1.8
Landsmeer	48.5	50.3	1.8
Groningen	51.3	53	1.7
Bladel	51.3	52.9	1.6
's-Hertogenbosch	48.9	50.5	1.6
Zoeterwoude	50.7	52.3	1.6
Leiden	51.7	53.2	1.5
Terschelling	52.1	53.6	1.5
Pijnacker-Nootdorp	51.6	53	1.4
Voorschoten	53.1	54.5	1.4
Katwijk	51.8	53.1	1.3
Middelburg	48.1	49.4	1.3
Heumen	52.5	53.7	1.2
Delft	53	54.1	1.1
Breda	49.6	50.7	1.1
Midden-Delfland	54	55.1	1.1
Westland	49.2	50.3	1.1
Meerssen	49.1	50.1	1
Valkenburg aan de Geul	48.6	49.6	1
Scherpenzeel	49.5	50.5	1
Veere	51.6	52.5	0.9
Putten	51	51.7	0.7
Eijsden-Margraten	49.5	50.2	0.7
Kampen	51.3	51.9	0.6
Amstelveen	52	52.5	0.5
Amsterdam	49.9	50.3	0.4
Gooise Meren	51.1	51.4	0.3
Koggenland	49.3	49.1	-0.2
Waterland	51.1	50.6	-0.5
Oostzaan	51.2	50.7	-0.5
Urk	51.5	50.9	-0.6

Annex B: Overview of the changes in CO2-emissions in 2019-2020 for all Elected Municipalities

Elected municipality	Typology	% Difference 2019-2020
Amsterdam	Large, Centre, Growth, Historic, Tourist, Work	-36.4
Leiden	Large, Centre, Growth, Historic, Tourist, Work	-18.0
Wageningen	Small, Growth	-15.7
Bergen (NH.)	Small, Green, Shrink, Tourist	-15.4
Landsmeer	Small, Former industrial, Growth, Residential, Tourist	-15.2
Wassenaar	Small, Green, Tourist	-15.2
Breda	Large, Centre, Growth, Work	-15.0
Amstelveen	Medium, Growth, Work	-14.7
Rijssen-Holten	Small, Former industrial	-14.3
Hilversum	Medium, Centre, Green, Growth	-14.3
Baarn	Small, Green	-14.0
Zeist	Medium, Green, Work	-13.7
Nijmegen	Large, Centre, Growth	-13.2
Veldhoven	Small, Former industrial, Work	-12.9
Woerden	Medium, Agricultural, Growth	-12.2
Deventer	Medium, Centre	-12.1
Utrechtse Heuvelrug	Small, Green	-11.9
Bergeijk	Small, Former industrial, Tourist	-11.5
Putten	Small, Former industrial, Green	-11.4
Voorschoten	Small, Growth, Residential	-11.2
Groningen	Large, Centre, Growth, Tourist, Work	-10.9
Amersfoort	Large, Growth, New town	-10.5
Veenendaal	Medium, Former industrial, Growth	-10.3
Katwijk	Medium, Centre, Growth	-10.1
Valkenburg aan de Geul	Small, Shrink, Tourist	-9.9
Woudenberg	Small, Growth	-9.7
Noordwijk	Small, Green, Tourist, Work	-9.4
Ouder-Amstel	Small, Work	-9.2
Oldenzaal	Small, Former industrial, Work	-9.1
Wijk bij Duurstede	Small, Residential	-8.8
Zwolle	Large, Centre, Growth, Work	-8.8
Koggenland	Small, Agricultural, Growth, New town	-8.5
Nuenen, Gerwen en Nederwetten	Small, Former industrial	-8.5
Eindhoven	Large, Centre, Former industrial, Growth, Work	-8.4
Arnhem	Large, Centre, Green, Growth, Tourist, Work	-8.3
Castricum	Small, Centre, Residential	-8.3

Leusden	Small, Green	-7.9
Ede	Large, Centre, Green, Growth	-7.6
Heerenveen	Medium, Centre, Work	-7.4
Apeldoorn	Large, Centre, Green, Work	-7.3
Barneveld	Medium, Green, Growth, New town, Work	-7.3
Zwartewaterland	Small, Agricultural	-7.1
Delft	Large, Centre, Growth, Historic	-7.0
Culemborg	Small, Former industrial, New town	-6.9
Nunspeet	Small, Green	-6.6
Voerendaal	Small, Agricultural, Former industrial, Residential, Shrink, Tourist	-6.1
Waterland	Small, Historic, Residential, Tourist	-5.9
Meerssen	Small, Former industrial, Residential, Shrink, Tourist	-5.9
Middelburg	Small, Centre, Historic	-5.9
Hellendoorn	Small, Former industrial, Green	-5.9
Dinkelland	Small, Agricultural	-5.7
Ermelo	Small, Green	-5.6
Hardenberg	Medium, Agricultural	-5.4
Aalten	Small, Agricultural, Shrink	-5.1
Eijsden-Margraten	Small, Agricultural, Historic, Residential, Tourist	-5.0
Eemnes	Small, Agricultural, New town	-4.9
Duiven	Small, New town, Work	-4.7
Heeze-Leende	Small, Green, Growth	-4.7
's-Hertogenbosch	Large, Centre, Growth, Work	-4.6
Leudal	Small, Centre, Shrink	-4.5
Terschelling	Small, Tourist	-4.4
Waalre	Small, Former industrial, Green, Residential	-4.4
Son en Breugel	Small, Growth, Work	-4.3
Gulpen-Wittem	Small, Agricultural, Historic, Residential, Shrink, Tourist	-4.3
Elburg	Small, Green	-4.3
Montfoort	Small, Agricultural	-4.2
Westland	Large, Centre, Growth, Work	-4.2
Tubbergen	Small, Agricultural, New town	-4.1
Best	Small, Former industrial, New town, Work	-4.1
Bladel	Small, Former industrial, Growth	-4.1
Kampen	Medium, Growth, Historic	-3.9
Oisterwijk	Small, Former industrial	-3.8
Meerijstad	Medium, Work	-3.8
Urk	Small, Growth, New town	-3.8
Oegstgeest	Small, Growth	-3.7
Losser	Small, Former industrial	-3.7
Bunnik	Small, Agricultural, Growth	-3.6

Hendrik-Ido-Ambacht	Small, Former industrial, Growth, New town, Residential	-3.5
Utrecht	Large, Centre, Growth, Historic, Work	-3.2
Bloemendaal	Small, Green, Growth, Residential	-2.9
Doetinchem	Medium, Work	-2.7
Voorst	Small, Agricultural	-2.6
Wierden	Small, Agricultural, Former industrial	-2.5
Vlieland	Small, Historic, Tourist	-2.4
Renswoude	Small, Agricultural, Growth, New town	-2.3
Oudewater	Small, Agricultural, Historic	-2.0
Lopik	Small, Agricultural, Historic	-1.8
Veere	Small, Tourist	-1.5
Heumen	Small, New town, Residential	-1.4
Staphorst	Small, Agricultural, Growth, Historic	-1.4
Dalfsen	Small, Agricultural, Growth	-1.3
Pijnacker-Nootdorp	Medium, Growth, New town, Residential	-1.2
Gooise Meren	Medium, Centre	-1.1
Midden-Delfland	Small, Agricultural, Growth, New town	-1.0
Houten	Small, Growth, New town	-1.0
Bronckhorst	Small, Agricultural, Historic, Shrink	-0.6
Berkelland	Small, Agricultural, Shrink	-0.5
Raalte	Small, Agricultural	0.0
Krimpenerwaard	Medium, Agricultural	0.2
Zeewolde	Small, Growth, New town	0.2
Brummen	Small, Former industrial	2.0
Mook en Middelaar	Small, Green, Residential, Shrink, Tourist	2.6
Oost Gelre	Small, Agricultural	2.6
Hattem	Small, Former industrial	3.2
Heiloo	Small, Residential	3.4
Buren	Small, Agricultural, Residential	4.2
Olst-Wijhe	Small, Agricultural	5.0
Heusden	Small, Former industrial, Residential	5.8
Rozendaal	Small, Green, Residential	6.7
Scherpenzeel	Small, Growth	8.0
Oostzaan	Small, Former industrial, Growth, Tourist	8.0
Hilvarenbeek	Small, Tourist	10.0
Zoeterwoude	Small, Agricultural	10.2
Schiermonnikoog	Small, Historic, Tourist	18.8
Ameland	Small, Growth, Historic, Tourist	18.9

(Source: www.emissieregistratie.nl)

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About Het PON & Telos

Improving social decision-making

Het PON & Telos is a social knowledge organisation at the heart of society. We consider it our mission to improve social decision-making. We do this by linking scientific knowledge to practical knowledge. In this process every voice counts! We collect, investigate, analyse, and interpret opinions and facts using stimulating approaches and innovative methods. In doing so, we are always focused on sustainable development: the harmonious connection between social, environmental and economic objectives. In this way we contribute to the quality of society at large, now and in the future.

With a multidisciplinary and creative team of nearly 30 research consultants, we work mainly for local and regional authorities in the Netherlands, but also for corporate bodies, banks, care and welfare institutions, funds, and social organisations. We work closely with civic organisations and other knowledge institutions and are an official partner of Tilburg University. We use our knowledge and insights to advise initiators, policy-makers and managers. This enables them to make informed choices and give a positive impulse to the society of tomorrow.

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