Sustainable City Index

SCI 2.0

– further developed, improved and extended –

Summary

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**Development towards sustainability is far too important to leave it to chance.**

The initial Sustainable City Index, SCI-2014, received a very warm welcome upon its publication in January 2014. This prompted us to quickly further develop, improve and extend the Index. As a result, we now present the new index which is more balanced, complete and robust and at the same time has become more up to date thanks to more recent data that have become available. The framework of the new SCI 2.0 is shown below.

Sustainable City Index 2.0	Human Wellbeing	Basic needs	1. Poverty 2. Education 3. Income Security
		Personal development	4. Gender Equality 5. Obesity 6. Sport
		Social development	7. Civil Participation 8. Security
	Environmental Wellbeing and Resource Circularity	Environment & Nature	9. Water Quality 10. Air Quality 11. Nature
		Resource efficiency	12. Waste 13. Recycling
		Energy efficiency	14. Energy Consumption 15. Energy Saving 16. CO_2 emissions 17. Renewable Energy
		Transport efficiency	18. Mobility (modal split) 19. CO_2 emissions transport
	Economic Wellbeing	Work	20. Total unemployment 21. Youth unemployment 22. Jobs
		Public Finance	23. Solvability ratio 24. Taxes

As can be seen, the three dimensions have been retained in conformity with the requirement for sustainability in its broad sense as defined by the Brundtland Commission. In the dimension Environmental Wellbeing more attention is now given to the circularity of raw materials. In addition it was now possible to add important indicators for CO_2 emissions, Energy conservation and Transport mode. In the dimension Economic Wellbeing indicators for unemployment and employment opportunity could now be included.

The most important feature of the SCI remains that it is a quantitative instrument instead of only a qualitative tool. The Index serves to provide city governments, inhabitants and companies with a practical instrument which shows at a glance the level of sustainability for the city as a whole and for the most important aspects expressed in the 24 indicators. The many reactions that we receive clearly prove that the Index is considered a useful guide for further development towards a sustainable city. The worksheets that are provided upon anyone's request for anycity have now already been issued for more than 60% of the cities, which is clear proof of this statement.

Data used for the SCI 2.0 are retrieved from public sources only and can be downloaded from our website www.gdindex.nl (in Dutch). Based on these data, scores on a scale of 1 to 10 are calculated for each of the 24 indicators and shown on 24 maps of the country. Aggregation into scores, again from 1 to 10, for the three dimensions and the overall Index is based on geometrical averages. As an example the scores for the average Dutch city are shown in the following spider web diagram. The centre of the web represents a score of 1 or no sustainability. The outer circle represents a score of 10, or full sustainability.

Average score 403 cities
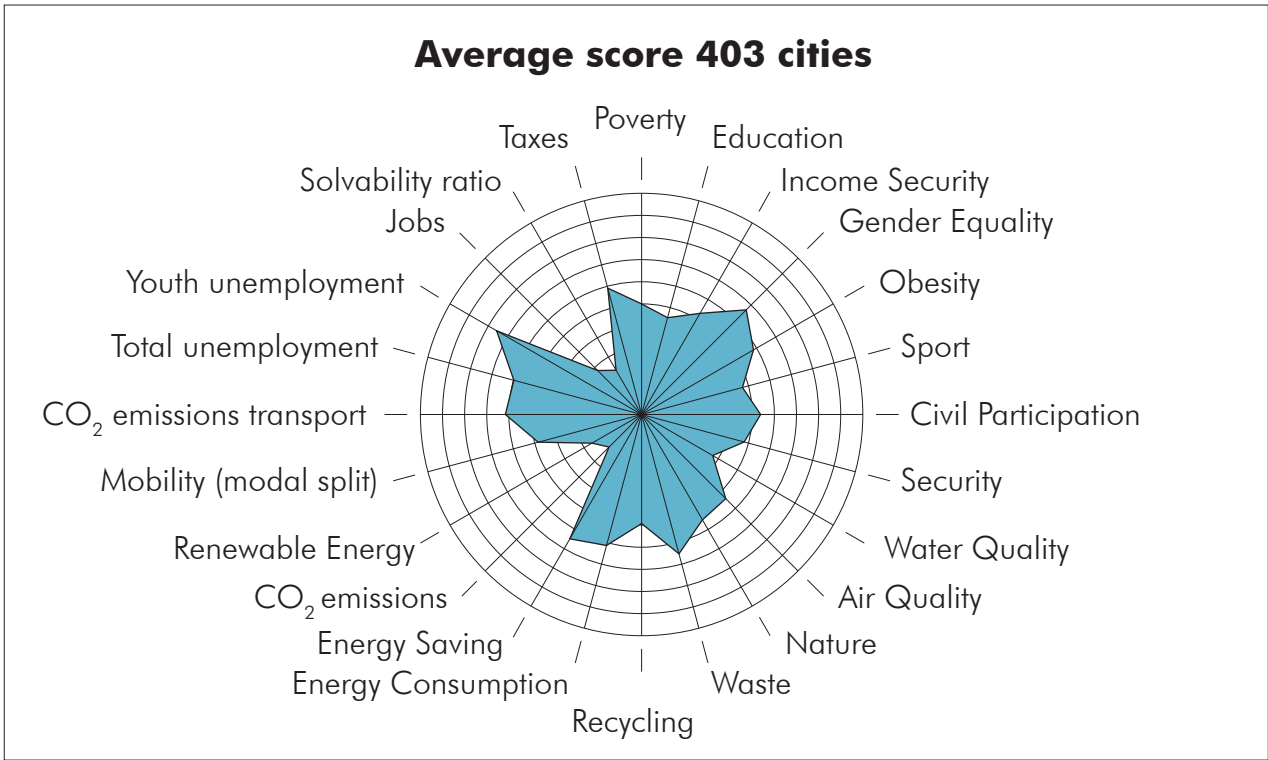
The overall score for this average city is a modest 4.8 There is thus ample room for improvement as is confirmed by the spider web: quite a few indicators show very low scores. All (now) 403 Dutch cities have been ranked according to their overall score. As was the case in the previous SCI-2014, the list is topped by Zeewolde, but this time this city shares first place with Kapelle, both with a score of 5.8. They may call themselves now the 'most sustainable community in the Netherlands'. At the same time, they face the challenge of success in the sense that they have to maintain (again) their position and to continue on their way to full sustainability. The city of Kerkrade has the lowest score (3.1) in the Netherlands and takes this place from Heerlen (now one but last) in the SCI-2014.

We have analysed the correlation of the overall index, the 3 dimensions and the 24 indicators with the population size of the cities. The overall Index correlates only very weakly with the population size in the sense that the score is somewhat lower for the bigger cities. A slightly stronger correlation in the same sense is found between the scores for the Human Wellbeing dimension and the size of the city. The other two dimensions do not show significant correlations. The correlations between the various indicators and the city size show differing results with few significant correlations. The full results can be found on our website.
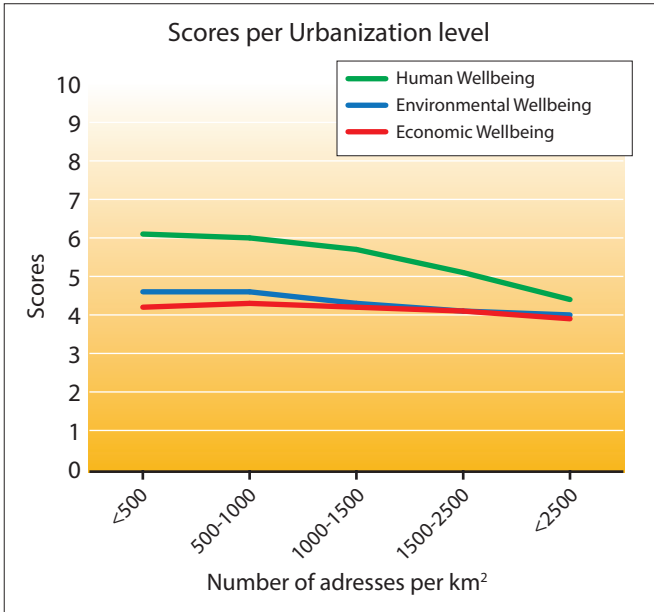
A further analysis was made of the correlation between the dimension scores and the urbanisation level, expressed as the number of addresses per km^2. The results are shown in the following diagram. It appears that there is only a clear trend for the dimension Human Wellbeing.

It should be noted that the correlations found do not reveal any causal relation. This would require further study of the underlying phenomena.

The threelargest cities in the Netherlands - Amsterdam, The Hague and Rotterdam – have relatively low overall scores and end up among 30 cities in the bottom end of the ranking list. It are particularly the low scores for the Human Well-being indicators that are to blame for this poor performance, though some other indicators also contribute to the low ranks.

A detailed study of the correlation between various indicators reveals some unexpected results:
   a.   There is only a weak correlation between CO_2 emissions and mode of transport, with less car movements corresponding with somewhat lower CO_2 emissions;
   b.   Lower domestic energy consumption correlates only weakly with higher energy savings;
   c.   The same holds for the correlation between lower obesity levels and higher participation in sports;
   d.   Significant correlation was found between higher incomes and higher scores for education. The latter expressed as % of drop-outs of secondary education.

Since data are available at city level, the results can also be aggregated to the level of provinces. The indicator scores for the 12 provinces of the Netherlands vary from 4.5 to 5.1 as shown in the next graph.
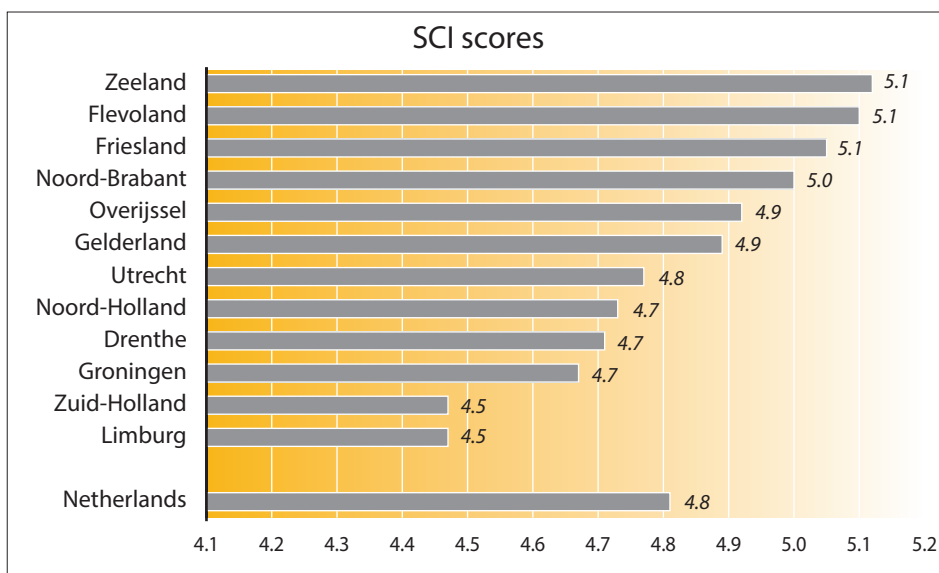
The SCI is an instrument that can serve a range of different users: city governments and their various community services, inhabitants, companies, schools and NGOs. Each of them can use the instrument to stimulate and accelerate development towards sustainability in the community. The SCI enables up to date monitoring the results of measures implemented and initiatives taken within the community.
The current version of the SCI is –in our opinion – a significant improvement over the previous one. Nevertheless, this does not mean that there is no room for further improvement, for which we already have several ideas. In addition we would be grateful to receive your remarks and suggestions to help us in making the next version even better.

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