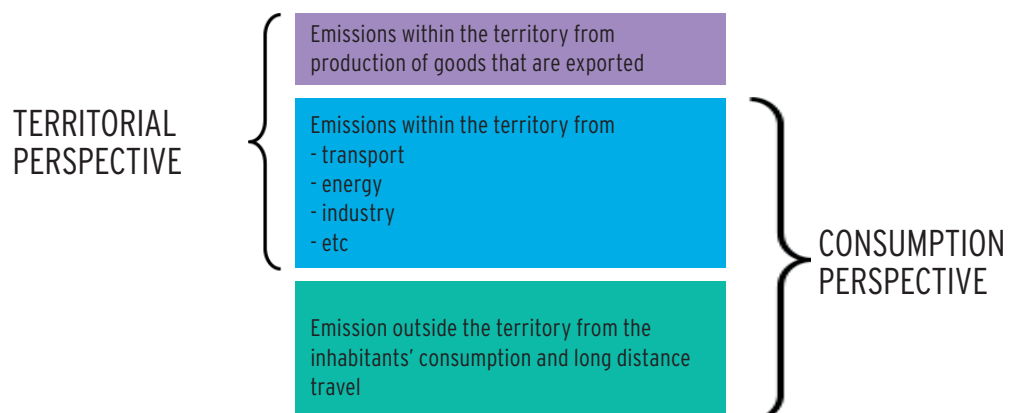


Consumption perspective in climate strategies of cities - the case of Gothenburg

The climate agreement in Paris 2015 is the starting point for a powerful global cooperation which can create conditions for an increased quality of life for people living today and for those in the future. Cities are viewed as having good opportunities for making substantial contributions. The City of Gothenburg and Chalmers University of Technology have, as part of the Mistra Urban Futures project "WISE - Well-being In Sustainable Cities", collaborated since 2012 to develop and implement a consumption based perspective for the local climate strategy. It means to take responsibility not only for the greenhouse gas emissions occurring within the city but also from emissions occurring in other parts of the world as a result of the consumption of its residents. This close cooperation has embraced many elements: the definition of problems and research questions; knowledge production resulting in various types of publications; development of goals and strategies; and, practical experiences from implementing a consumption perspective in a large organization. Based on this co-operation, five recommendations have been developed which can be useful for other cities that are considering taking increased responsibility for the climate impact from consumption.

POLICY RECOMMENDATIONS

- 1. Account for both the territorial perspective and the consumption perspective.**
- 2. Integrate the sectors of food, air travel and public consumption in the climate strategy.**
- 3. Communicate that a low-carbon lifestyle provides opportunities for a high well-being.**
- 4. Adopt consumption-based climate targets.**
- 5. Carry out measures for reducing the greenhouse gas emission from consumption.**



Consumption perspective in local climate strategies

1. ACCOUNT FOR BOTH THE TERRITORIAL PERSPECTIVE AND THE CONSUMPTION PERSPECTIVE

Historically, environmental work focused first on emissions from factories and later expanded to include emissions from transport. In these cases, the focus is on emissions that occur within a certain geographical area, such as a municipality. If one only takes the territorial perspective into account (sometimes called the production perspective) the full life-cycle accounting of emissions from production and transportation are not representative for the goods and services consumed. This leads to an inaccurate representation. Including both the territorial and the consumption perspective is a way to take global responsibility.

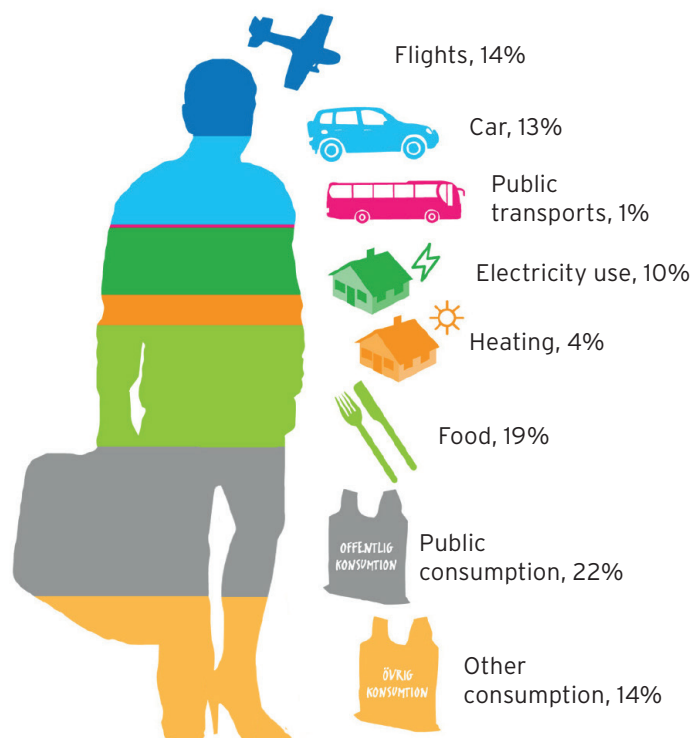
The emissions calculated from a territorial perspective is about 5 tonnes of carbon dioxide per person per year in Gothenburg. This is higher than in many other Swedish cities due to the amount of industrial production in Gothenburg. However, to make the corresponding calculation from a consumption perspective gives more uncertain results due to a lack of reliable data. Nevertheless, the analysis undertaken in this project suggests that the consumption-based emissions is about 8 tonnes per person and year.

2. INTEGRATE THE SECTORS OF FOOD, AIR TRAVEL AND PUBLIC CONSUMPTION IN THE CLIMATE STRATEGY

Consumption-based analysis can be used to identify which sectors are the highest emitters. The figure of the person below shows how emissions from a consumption perspective are distributed between different sectors. The large emission sectors are car driving, heating, flights and food. The category of "other consumption" includes all other private consumption which is not included in the other sectors, e.g. clothing and electronics. Greenhouse gas emissions from public consumption is a result of tax financed activities at the municipal, regional and state level such as construction of roads and buildings, operation of schools and hospitals as well as business travel among public officials.

The analysis is for the average resident in Gothenburg. The individual differences are however very large. The strongest factor which influences this is the income level. Analysis shows that a typical high-income earner in Gothenburg causes roughly twice the carbon footprint of a typical low-income person.

In Gothenburg, there is ongoing development work being carried out to determine how the emissions from a consumption perspective can be monitored, e.g. a method for monitoring the emissions from air travel has been developed. For other cities that are considering adopting a consumption perspective, it is not necessary to make the same careful analysis as has been done in Gothenburg. This is because there is a risk that an unreasonable share of municipal resources is used for making various types calculations which takes resources away from implementation of projects to reduce emissions. Consumption patterns of residents in Swedish cities, as well as cities in some other countries, are similar to each other. The result from consumption-based analyses can often be generalized that the following sectors are the large emitters, and therefore should be included in the climate strategy: food, flights and public consumption (besides the "traditional" climate strategy sectors of e.g. car driving and heating). The category "other consumption" also causes high emissions, however, further work is needed in order to identify which products and services are causing the largest emissions.



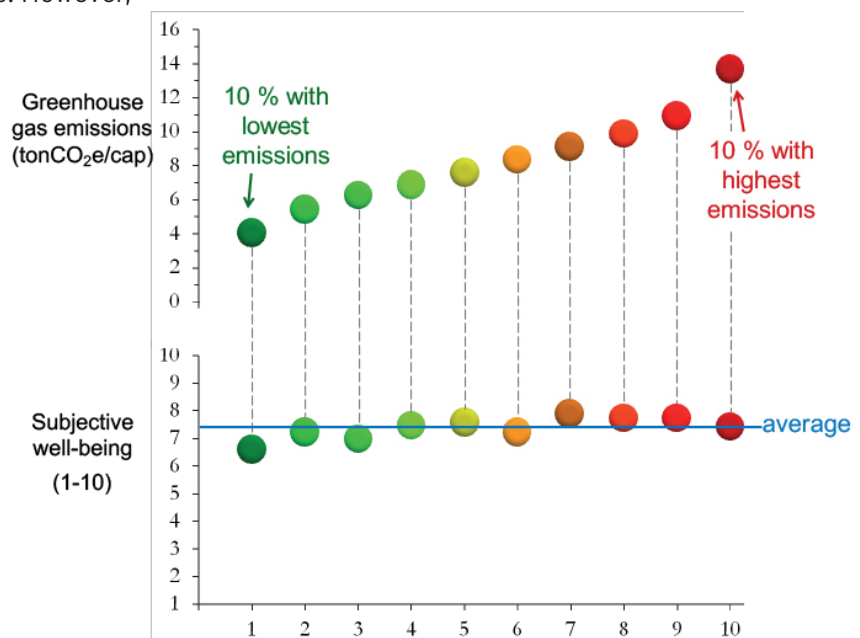
3. COMMUNICATE THAT A LOW-CARBON LIFESTYLE PROVIDES OPPORTUNITIES FOR A HIGH WELL-BEING

To reach the global climate targets, drastic reductions in emissions over the next decades are necessary. But is it even theoretically possible to achieve 75 percent lower greenhouse gas emissions by 2050? What changes would be required to achieve this? To give a tentative answer to this, analyses were made of the total potential results from a wide range of technical solutions, such as fossil free cars and heating systems, 65 percent lower emissions from the energy used to produce the imported goods and halving energy use in households. However, this only gave half of the necessary reduction. To reach the target of a 75 percent reduction, an additional scenario was evaluated that included a number of lifestyle changes: halving consumption of beef and pork; a reduction of the level of air travel to the same as year 2000; an increased proportion of service-based consumption (e.g. hairdressing, therapy, café visits); and, a decrease in working hours by 25 percent as this dampens the increase in consumption. It is important to point out that this kind of prospective analysis is extremely uncertain, but our analysis can still be seen as an indication of in necessary to achieve the target.

The scenario described above indicates that it is possible to combine a modern lifestyle with meeting ambitious climate targets. However, this scenario contains lifestyle changes and an interesting question is whether this would conflict with individual well-being. To analyse this, a survey involving 1000 individuals in Västra Götaland was conducted and the results are summarized in the figure below. The upper part of the chart shows that the 10 percent with the lowest emissions only causes one-third as much climate impact as the group causing the highest emissions. The lower part of the diagram shows that the differences in well-being are very small, implying that a low-carbon lifestyle is resulting in as high a level of well-being as a high-carbon lifestyle.

Thus, it appears that there is no general conflict between a low-carbon lifestyle and high well-being. On the other hand, the claim that a low-carbon lifestyle automatically should be linked to higher well-being does not have support here. There are, from a well-being perspective, both positive and negative elements of a transition to a low-carbon society. Roughly speaking, the well-being levels in a low-carbon society would probably be about the same as today. This indicates that the risk of deteriorating the living conditions for future generations can be removed without major sacrifices by the current generations.

These analyses are based on differences among individuals. Of course, one cannot conclude from this that it would therefore be easy for individuals to change their own lifestyle overnight. It is well known from previous research that it is difficult for people to change behaviour and consumption patterns, particularly if these are part of established habits and practices. A transition to a low-carbon society would, however, not happen overnight but instead gradually, in our scenario during over three decades, and then the results above could be relevant.



4. ADOPT CONSUMPTION-BASED CLIMATE TARGETS

In order to obtain political support for consumption-based climate activities, well entrenched climate targets are necessary. In 2008, the City of Gothenburg adopted the goal of having an “equitable and sustainable level of greenhouse gas emissions by 2050”. Equitable implies a consumption perspective which has laid the foundation for the extensive analytical work described above.

The Climate programme, adopted in 2014, focuses on both the greenhouse gas emissions occurring in the territory of the city and the emissions occurring globally due to consumption by the residents of Gothenburg. The City of Gothenburg is one of the first cities in the world to adopt a consumption-based climate objective, “By 2035, the consumption-based emissions of greenhouse gases by the people of Gothenburg will be a maximum of 3.5 tonnes of carbon dioxide equivalent per person.” In practice, this means that emissions must be more than halved. There are also more specific consumption-based objectives for 2030, e.g. that the climate impact from the citizen’s air travel will be reduced by 20 percent, and that the climate impact from food consumed in the City of Gothenburg will be reduced by 40 percent.



Future Happiness Challenge. Free download from AppStore (iPad) or www.pedagogisktcentrum.se/fhc (mac/pc)

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The work with this policy brief was supported by Mistra Urban Futures and Formas (grant number 2013-128).

5. CARRY OUT MEASURES FOR REDUCING THE GREENHOUSE GAS EMISSION FROM CONSUMPTION

When it comes to objectives involving private consumption patterns, the possibilities for the city to influence these are naturally limited. If there are no possibilities for this, one can question whether it is at all reasonable to have consumption-based objectives. This question is the focus of current research that the researchers concerned are conducting.

The Climate programme for Gothenburg includes a variety of strategies involving virtually all municipal departments and companies. For example, the food-related climate target involves serving tasty and nutritious vegetarian food. Today, all schools and kindergartens serve vegetarian food at least one day a week and in some cases meat is only served once a week.

In order to influence people’s consumption, the City of Gothenburg has developed new working methods with climate relevant sectors (e.g. flights / vacation habits). One example is the project www.greenhackgbg.se which is taking place on Instagram and Facebook, where one campaign is promoting “staycations”, i.e. to encourage people to take a vacation locally. Another activity is that the city offers residents the web service of www.svalna.se which is designed to give people an overview of their own carbon footprint and to receive customized proposals for change. Furthermore, the city also uses schools as a channel to both increase awareness of climate change among the students and to influence their parents. Within the framework of this research project, a digital game has been developed, which is used in secondary schools, called Future Happiness Challenge. The concept here is to maximize happiness and minimize climate impact.

This policy brief is also available in Swedish. Further reading:

Andersson D, Nässén J, Larsson J, Holmberg J, (2014). Greenhouse gas emissions and subjective well-being: An analysis of Swedish households. *Ecological Economics*

Nässén J, Andersson D, Larsson J, Holmberg J (2015) Explaining the Variation in Greenhouse Gas Emissions Between Households: Socioeconomic, Motivational, and Physical Factors. *Journal of Industrial Ecology*

Larsson J, Bolin L (2014) Low-carbon Gothenburg 2.0. Technological potentials and lifestyle changes *Mistra Urban Futures Reports 2014:1*



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