



**PROMOTING
SUSTAINABLE FOOD CONSUMPTION
IN THE NETHERLANDS**

BACHELOR THESIS

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Executive Summary

The industrialisation of our planet has ensured that we can enjoy many certainties that were not available to previous generations. While many have benefited from these developments, others have had to sacrifice a lot to provide this growth of prosperity. These others have not always been taken into account, until recently. Mankind has realised that the ever so fragile balance has shifted towards a world that might not be able to sustain its inhabitants in the future any longer. Ecosystems have been disturbed, the climate is changing, the global biodiversity has been drastically reduced and poverty is still not resolved. While the global population is increasing, we are increasing the stress on the natural resources of our blue planet. Unless global governments do not act now to change this process, our species and those surrounding us are doomed.

Luckily, the new millennium has ensured an increase of awareness among governments, companies and people. New laws are being implemented on a global scale to stop and even reverse the damage that we have caused to our environment. New initiatives are executed on a daily basis to make sure that future generations will have a chance at living the same privileged lifestyle that we have had for the past decades. New sustainable sources of energy and new technologies are being used to turn our society into a sustainable one. A different mindset is slowly integrating into our values. As these new values evolve, the corresponding behaviour is bound to change as well. There are many ways to become more sustainable on a small scale within our local environment. Using public transport instead of the car, changing conventional light bulbs into energy saving ones and buying sustainable food products from your local supermarket are all ways of contributing to this sustainable development. This thesis covers the latter and will explain sustainable food consumption from three different angles. The government's policy, the initiatives from the business community and the behaviour of the consumer are analysed to give an overview of how sustainable consumption can be promoted in the future.

The Dutch government wants to have a leading position in a few years when it comes to the production and consumption of sustainable food. They have set out a new sustainability policy which involves all the Ministries, called KADO. One aspect of this policy is the promotion of sustainable food among the Dutch population. The Ministry of Agriculture, Nature and Food Quality has set up several policy documents elaborating on the detailed objectives concerning sustainable food. Their policy document on Sustainable Food focuses on three different aspects of achieving sustainable food consumption. The first aspect concerns the production side, which includes farms, food processing companies, distributors

and the supermarkets. If the demand for sustainable food will increase in the future, the supply needs to be sufficient to support this. Therefore, farmers are encouraged to cultivate organic products and to make their production methods more sustainable. The second aspect concerns the promotion of sustainable food among consumers. Consumers need to be made aware of the consequences of their own behaviour before they can actually be convinced of the need to buy sustainable food. The government has set up a campaign to inform the consumers about their behaviour. The campaign deals with animal well-being, the waste of food, climate change, fair trade and the origin of food products. Apart from this campaign, the government aims at reconnecting young people with the production of their own food. The third aspect of the policy objectives deals with putting sustainable food consumption on the international agenda.

Supermarkets have started their own initiatives as well, because of a growing demand for sustainable products. Many of them publish Sustainability Reports on their websites to show consumers that they are taking sustainable development serious. Environmental organisations are pushing supermarkets to provide the consumers with more sustainable products and thus taking up a certain level of responsibility. Many supermarkets have a growing number of organic, Fairtrade and other sustainable products in their shelves and some even have their own sustainable food brand. By increasing the attention to sustainable food and improving the visibility of sustainable food products in their stores, supermarkets are contributing substantially to sustainable food consumption.

The current position of the organic, Fairtrade and sustainable fishery sector in the Netherlands is still fairly small, but a small annual growth can be seen nonetheless. A lot of quality marks ensure that sustainable production is being promoted and recognisable in the shelves of supermarkets. The sustainable purchase policy of the government has ensured that the organic sector has been stimulated as well. The organic sector is still supported by the government, but in a few years this sector needs to be independent and self-sufficient. Fisheries are also supported by the government to become more sustainable and comply with the standards of sustainable fishery quality marks. As consumers are travelling around the world, they are getting acquainted with the lifestyles of people in developing countries and therefore see the need to buy Fairtrade products. The Fairtrade sector is therefore enjoying an annual growth as well, causing farmers in developing countries to receive a better income.

Consumers still have problems realising what the consequences of their actions are. They are more inclined to think in terms of 'here and now' instead of 'elsewhere and later'. As their

knowledge about sustainability is slowly increasing, they are also slowly adjusting their behaviour. However, a lot of consumers still have the idea that their food is produced in an idyllic and traditional way, instead of the actual industrial production. Consumers are also buying more prefabricated meals which hardly require any preparation time. The ingredients of these meals often originate from all over the world, which has led to consumers being alienated from the production process.

Consumers will have to reduce their consumption of protein rich food products, because of the increased energy that is needed for their production. The waste of food also needs to be reduced because a lot of energy is lost there. Animal well-being should be an important purchase motive when buying food and a certain level of responsibility needs to be taken into account. A lot of consumers often believe that their own change in behaviour doesn't contribute to a more sustainable society if other consumers are not changing their behaviour. Small sustainable steps in the lifestyles of consumers without a substantial loss in luxury are therefore the solution to achieving sustainable food consumption.

The survey that was done for this thesis paper shows that the government does not supply the consumers with sufficient information about sustainable food and does not promote the consumption of it enough either. When supplying consumers with enough information about sustainable food in a comprehensible way, it is possible to change their mindset and their behaviour.

Consumers should indeed be reconnected to the production of their food, but this should be done on a more local basis. Because 'here and now' is the main mindset of consumers, they should be showed within their own environment what sustainable development can mean to them and their offspring. Supermarkets need to provide their customers with products from local (organic) farmers and explain the benefit of having a regional supplier of food. Students from all ages at schools need to be reconnected with the farms within their own region so to show them what regional sustainable production could mean for them and their families. If the main information source for sustainability is situated within the supermarket, the consumer does no longer have to put in any effort to inform himself about sustainability. Advertisement campaigns about sustainable food should not focus on a certain level of guilt that a consumer should feel, but the added value of a sustainable food product. An improved taste and healthiness of sustainable food are seen as much more important purchase motives than the contribution to a more sustainable society.

Apart from this promotion policy, the government could do a few more things to promote sustainable consumption. Taxes could be introduced for protein rich products, which could then be used to finance sustainable food. If sustainable food is cheaper than its conventional version, there would no longer be a motive preventing consumers from buying sustainable food products. Legislation is also needed to simplify the quality marks that indicate whether a product is sustainable. Consumers need to gain trust in these quality marks that ensure them that they have made a sustainable choice. Scientific proof of the improved value of sustainable food needs to be published as well, to convince sceptical consumers of the advantages of buying sustainable food.

The government is not the only one responsible for changing the mindset and behaviour of consumers. It is a combined responsibility of the government, the business community and the consumer himself. The government should provide the information needed to change the consumer's mindset. The business community should take its responsibility by increasing the visibility and promoting sustainable food. But it is mainly the consumer himself who decides how he or she can change his or her own behaviour. It only requires small steps to achieve a much larger goal. It is a burden and responsibility that we carry as a combined entity. As the former awareness campaign statement in the Netherlands said: "A better environment starts at home".

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Introduction

Our planet is currently undergoing several changes that might compromise the continuity of our species and those surrounding us. The view of scientists on a global scale has influenced the policy of the majority of all governments for a few centuries now, because they have noticed that postponing problems is no longer an option. To be able to learn from our mistakes, it is essential to know where the problems first started and how they have developed from that moment on.

Sustainable development seems to be the solution to the changes that are currently jeopardising our society and its environment. Sustainable development takes people, the environment and a responsible amount of economical growth into account. These three segments are commonly referred to as People, Planet and Profit. The government, the business community and you as a reader, being a consumer, are all involved into making this objective an integrated part of our lifestyle. All three parties need to cooperate and adapt their previous ways of thinking in order to make this happen and thus preserving our global heritage.

The main research question of this thesis paper is: “How effective is the communication and promotion policy of the Dutch government in regards to sustainable food in the Netherlands?”

We have several crises on our hands right now, such as the economical crisis, the fuel crisis and the upcoming food crisis. The intensity of these last two will only increase over the next few years. In order to prevent the food crisis leading to mass famine or war, we need to change our eating patterns. What we eat on a daily basis directly affects our health, but also the environment, nature, landscapes, animal wellbeing and working conditions.

The Netherlands should contribute to the global food security and food safety by playing a key role and functioning as a role model. A way of achieving this key role is by promoting the consumption of sustainable food instead of conventional products. Using more sustainable energy and buying other sustainable non-food products, such as certified wood, are important aspects of sustainability as well. This will however not be covered in this thesis, although all contributions to sustainable development can be considered as one entity.

This thesis paper was set up in such a way that it resembles a magnifying glass. Every chapter explains the broader approach before focusing on the situation in the Netherlands. A lot of background information is supplied, so that you as a reader are well informed about

certain aspects of sustainable development before getting into detail. Because sustainable development is a very broad topic, only a very basic description is provided of all the current threats, developments and policies.

The sub question “What are the current threats to sustainability on a global scale and in the Netherlands?” is covered in the first chapter. It deals with all the changes that have led to the alteration of worldwide policies on sustainable development. It first describes previous developments in Europe that have rapidly increased the industrialisation process all over the world. It continues with all the threats to our planet and its ecosystem. As a final part of this chapter, the current situation in the Netherlands is described to clarify what the future might hold for its inhabitants.

The sub question “What is the current market position of sustainable food in the Netherlands?” is covered in the second chapter. It explains all different varieties of sustainable food to prevent confusion about terms like organic or ecological. The current position of the organic sector, the Fairtrade sector and the sustainable fishery sector in the Netherlands are described to give a brief overview of all the latest developments and their market share in the entire Dutch food industry.

The sub question “What is the current policy of the Dutch government on sustainable food?” is covered in the third chapter. It describes the major guidelines of the policy related to sustainable development and gives a glance into the global policy and the European policy. The policy of the Dutch government is split up into organic farming, sustainable fishery and sustainable food. The chapter also describes some research done by the government on sustainable food consumption and the government’s awareness campaign on sustainable consumption. The policy of the supermarkets in the Netherlands is briefly touched upon to explain how they are adapting to a changing society as well.

The sub question “What is the knowledge, attitude and behaviour of Dutch consumers in regards to sustainable food?” is covered in the fourth chapter. The survey that was done to answer this question is explained in detail and conclusions are drawn about different consumer groups.

The fifth and final chapter covers the conclusions and recommendations based on all the information gathered during the writing process of this thesis paper. This chapter will answer the main research question and will include the outcome of all the sub questions answered in previous chapters.

1. A Changing Planet

A lot of developments in the past have led to the changes and threats to our environment at the moment. By explaining what these developments were, this chapter clarifies how the world was able to change so much in less than two centuries. All threats on a global scale and in the Netherlands are briefly explained to show the interdependence of all these developments.

1.1. Industrialisation

New inventions, such as the steam engine in 1705, led to a 'revolution' in Britain, which quickly spread across the United States and Europe. This revolution started in the textile industry, as water powered machines could produce clothing in large quantities. Large buildings – factories – were built by business owners, which initiated the first mass produced product in the history of mankind. The agricultural revolution had already ensured that the availability of food had increased and the quality of nutrition among the population had improved. This second development caused an improvement in the quality and quantity of clothing and therefore an improvement in the general living conditions of people.

In the 1820s, a steam fuelled locomotive was invented which could transport large quantities of products in a shorter period of time from the factories to the market. As industry developed, more and more people started to move to cities to find work in factories and other professions. The workforce in these factories, consisting of men, women and children, often made long days and had a short lifespan.

Britain was able to grow economically in this way because of several reasons. It had coal and water to power its machines, iron ore to produce these machines and rivers to move its people and goods. Besides that, it had good harbours to transport these goods to other countries. Other countries that adopted this industrialisation benefited enormously and their economies could grow immensely in a short period of time. The English city of Manchester, large parts of Belgium and the west-central part of Germany quickly transformed into regions which could mass produce goods because of the availability of these raw materials. The growth in industry in the United States was sped up even more because of the availability of oil and the invention of electric light by Edison. Countries in Europe slowly started to imperialise countries in Africa and Asia. They took advantage of these lands by using them as suppliers of raw materials to fuel their factories in Europe. Some countries adopted the capitalist way to regulate their economies, while others introduced communism.

As global economies began to expand, new problems arose. Raw materials were taken from the ground and used to fuel the growth of the economy. Natural and ancient environments were transformed into arable land to feed a growing population. People during that time might have had some idea of the effects of their actions, but had no knowledge of the impact that emission levels of fossil fuels would have on society in the future¹.

The pictures in Appendix I show the level of three different greenhouse gasses over a time span of 10.000 years. The collected data for these graphs was mainly available because of small air bubbles which were trapped in layers of ice, formed thousands of years ago. All three graphs show an extra enlargement of the last two centuries to show what happened after the world started to industrialise. The picture in Appendix II shows the anomaly in global temperatures since 1900. By comparing these pictures, one could conclude that the global temperatures have risen because of an increase in greenhouse gasses. Most scientists agree that this is the most acceptable conclusion, but too many factors could influence the global temperature to accept it as a scientific fact. Variables in the earth's rotation around the sun, the solar activity, volcanic activity and many other factors might have contributed to the rise in the average global temperatures since the start of the industrialisation. It can be stated though, that the industrialisation of the world has made us dependent of fossil fuels. And whether or not the use of these fossil fuels has led to an increase in temperatures, it would always be beneficial to change to more sustainable sources of energy such as solar or wind energy. These sources of energy are 'endless' and have no long-lasting detrimental effect on the environment. Living in a more sustainable way will therefore prevent industrialisation being the downfall of our planet.

1.2. Global Changes

The world is currently undergoing many changes that are already starting to affect our lifestyle. The future will hold even more challenges that need to be approached carefully. A minor decision on the short run could lead to even larger changes and threats on the long run. Seeing that there are just too many changes to our planet and society at this moment, it is simply impossible to mention all of them. The ones mentioned give a fairly decent overview of the main problems that are currently at hand. To have a basic understanding of local changes in the Netherlands, it is necessary to show an overview of these global problems and their influence on our own nation².

¹ Paragraph based on: Beck, R.B., *World History: Patterns of Interaction*.

² Paragraph based on: Roorda, N. (2007). *Werken aan Duurzame ontwikkeling*.

1.2.1. Disruptions of the Atmosphere

The atmosphere is influenced in several different ways by human activity. Certain gasses, such as chlorofluorocarbon (CFCs), which was commonly used in refrigerators, causes damage to the ozone layer. The ozone layer forms a protective layer around our planet to protect us from the ultraviolet light coming from outer space. The level of deterioration was at its worst around the poles, where it caused a gap that grew larger every year. This issue was dealt with in 1989 with the Montreal Protocol³, which limited the production of substances that could harm the ozone layer.

Although this global agreement has ensured the slow recovery of the ozone layer at this moment, there are still other forms of atmospheric pollution that have not been dealt with. Aerosols, for example, are fine particles emitted by industrial activities, agricultural activities and traffic. These particles can cause harm to the health of people and animals, causing cancer and lung diseases.

Smog is another form of air pollution, which consists of ozone, aerosols and sulphur dioxide. This form of pollution can mainly be found in cities and industrial areas and causes respiratory problems. Many inhabitants of large cities can be seen wearing face masks to protect themselves against this form of pollution.

Acid rain is also known as a common phenomenon, which is caused by the emission of sulphur dioxide and nitric oxide in agriculture.

The most current issue is the greenhouse effect. Before explaining the causes of the greenhouse effect, the difference between the natural greenhouse effect and the anthropogenic greenhouse effect needs to be explained. The natural greenhouse effect has been active long before mankind existed, and this is the sole reason that our existence has been made possible. The natural greenhouse effect ensures a more moderate temperature on our planet, which in return prevents all species on our planet living in permanent subzero temperatures. This natural greenhouse effect has also caused warmer and colder periods during the history of our planet, referring to a more tropical climate during the 'dinosaur' era and ice ages during the 'mammoth' era. The anthropogenic greenhouse effect, on the other hand, refers to man-made actions influencing the greenhouse effect. The proof for the level of accountability of these influences is not completely substantial, but rising temperatures across the globe show that our climate is definitely changing. Rising sea levels, increasing

³ *Montreal Protocol on Substances that Deplete the Ozone Layer*. Ozone Secretariat, United Nations Environment Programme (UNEP).

accounts of forest fires, river floods, hurricanes, desertification, the extinction of animals and inexplicable events such as El Niño are all attributed to the current changing climate, although many of these events are hard to link to the greenhouse effect directly. The climate is intertwined with many processes that could all reverse or stimulate the current greenhouse effect, such as the amount of water vapour in the atmosphere, the amount of plankton in the water, the ability of icecaps to reflect sunlight (Albedo), the ocean currents and many others.

1.2.2. Biodiversity

The world has known many animals before our species came to exist, of which some are still alive today and most have vanished because of extinction. This extinction is a natural process that can either be caused by evolution or by an imminent threat to their habitat. A difference is made between a natural and an anthropogenic change. A meteor hitting the earth, tectonic plates adjoining, a natural forest fire or an ice age are all natural threats that have caused innumerable amounts of animals and plants to become extinct. Anthropogenic threats to species could consist of anything, ranging from the introduction of a new species in a new environment to tracking down an animal for nutrition or other purposes. The extinction can either be global, in which case the species is permanently vanished, or local, whereby it is possible to introduce the same species again from another region of the planet. Loss of habitat often leads to extinction as well, because the area is transformed into arable land or another form of cultivation. Cultivating land can often lead to irreversible damage, because the entire ecosystem is destroyed and the previous environment can no longer recover from soil erosion for example. The warmer climate has also caused animals to migrate to regions where they previously never existed, causing even larger problems for the indigenous ecosystem.

1.2.3. Poverty

Sustainability cannot be implemented when the living standard of a certain society is at its outmost minimum. The first concern of the people living in such poverty is survival and supplying their own family and community with the basics, such as housing, clothing and food. A difference can be made between absolute poverty and relative poverty. In case of absolute poverty, people live in the most horrid conditions without any basic necessities, mainly to be found in developing countries. Relative poverty refers to people which are poor in comparison to the rest of their country or environment, but do have the barest necessities available.

The problem of poverty has only worsened over the past few years, because of the disproportionate increase of purchasing power of the wealthy nations in comparison to developing countries, which has a continuous trend. These developing countries often have to pay off more interest on their government loans than they receive in financial aid. The middle class of most wealthy nations wants to keep their position and wouldn't benefit from poor countries gaining more power, which can also be called the 'status quo'. Subsidies by the European Union to European farmers is a good example, because this is an artificial way of maintaining a good market position, while farmers in developing countries have no chance of competing against these artificial prices.

1.2.4. Limited Resources

The planet only has a limited supply of certain resources, such as oil, gas, coal and several raw forms of metal. The question remains when these limited resources will run out and what their replacements will be. Current estimates range the exhaustion of oil, for example, somewhere between 20 and 55 years. This variation in time depends upon the rising demand of upcoming nations, such as China and India, and future possibilities to mine more inaccessible supplies of these resources. But whether or not this moment is extended, it does remain an undeniable fact that the day will come that there will be no more oil. That would mean that cars could no longer run, plastic could no longer be made and airline companies would just cease to exist. This calls for measures of limitation of the current resources and technological research to find certain alternatives. Before that time will come though, an energy crisis will come to exist because of a rising demand for the last remains of these resources. Wealthy nations will have adapted (partially) by then to new forms of energy, but developing nations will pull the shortest straw once more.

The same goes for 'endless' resources, such as wood, sand, fish and other sources of food. As the global population will only expand over the next few decades, the demand for food will rise accordingly. The current supply of food can barely keep up with the demand and the future doesn't look bright when it comes to feeding the entire population of the world. Therefore, another crisis is at hand which could cause tremendous and unpredictable strives between individuals and nations. The struggle for food will probably be the worst crisis ever seen by mankind and it is a challenge to prevent this from happening.

The world could be compared to the former population of Easter Island, which eventually became extinct because of their own ignorance and stupidity. The island had an 'advanced' civilisation that was flourishing for some time. They lived of fish by building canoes out of

trees to catch the fish out on the sea. As the population grew, the demand for fish grew, so more canoes needed to be built. At some point there were no more trees left, so the fishermen could no longer build any canoes. This resulted in them not being able to catch any fish anymore and their population starved from malnutrition and finally became extinct.

1.3. Changes in the Netherlands

The Netherlands will undergo many changes in the near future as well, some of which are experienced elsewhere on our planet as mentioned in the previous paragraph, and others for example, might only affect the Netherlands because of its low lying land, its dense population or its geographical position.

1.3.1. Climate in the 21st Century

The Dutch Royal Meteorological Institute (KNMI) has set up a report⁴ predicting the climate in the Netherlands in the 21st century. The scenarios for the different seasons of the year can be found in Appendix III. The scenarios vary respectively in whether or not changing air currents have been taken into account and whether a difference between a rise in temperature of 1°C or 2°C has been used. The difference in temperature is based on predictions of carbon dioxide emissions made by the IPCC in their assessment reports of 2001⁵ and 2007⁶. The results of the predictions for 2050 are based on a 30-year average of the years before and after that particular year. Extreme changes in the climate and ocean, such as the accelerated melting process of the icecaps or the disappearance of the Gulf Stream, have not been included either. As a basis for these scenarios, global climate models (GCMs), regional climate models (RCMs) for Europe and historic measurement sequences from different weather stations in the Netherlands have been used. The KNMI has split up the predictions into four different categories to make it comprehensible.

Temperature

The average global temperature has risen with 0.8°C in total since 1900. This rise accelerated at an exponential rate between 1975 and 2006, with 0.5°C. Scientists are not completely certain whether this rise in temperature can be attributed to human activity, but it certainly seems plausible that it has played a substantial role. The average temperature in the Netherlands has increased with 1.2°C between 1900 and 2006. The temperature in the Netherlands is largely influenced by the wind. Wind coming from the west ensures milder

⁴ *KNMI'06 klimaatscenario's voor Nederland*. Royal Dutch Meteorological Institute (KNMI)

⁵ *Climate Change 2001: Synthesis Report*. Intergovernmental Panel on Climate Change (IPCC)

⁶ *Climate Change 2007: Synthesis Report*. Intergovernmental Panel on Climate Change (IPCC)

winters, while wind coming from the east causes hotter summers. Because the amount of days in February and March, in which the wind has been coming from the southwest has increased, the temperatures have been more moderate. Whether this change in wind direction is due to an increase in human activity or due to natural fluctuations remains unclear.

The rise in temperature in the Netherlands is not equal to the worldwide rise in temperature because of its geographical location at the edge of a warming continent and the moderate influence of the Gulf Stream. The four scenarios predict an increase in 2050 between 0.9°C and 2.3°C during the winter and between 0.9°C and 2.8°C during the summer. These conclusions are based on the year 1990, which consists of the average temperatures between 1976 and 2005. Because the measured temperatures between 1990 and 2005 vary more than 0.5°C, it could mean that the estimates are still on the conservative side. On the other hand, the natural yearly fluctuations play a substantial role in these observations.

Precipitation

The Netherlands has experienced an increase in precipitation of 18% since 1906, mainly during the autumn, winter and spring. The total sum of precipitation during long periods of rain (10 days) has increased as well by 29%. All the scenarios predict an increase in 2050 in the quantity of precipitation during a downfall while the number of days on which it will rain will decrease.

Wind and Storm

The total number of storms (wind force 6 inland and wind force 7 at the coast on the scale of Beaufort) has decreased with 20-40% since 1962. The Netherlands is too small to measure any changes in extreme storms (at least wind force 10 or 11), because they occur less than once per year. For the wind climate, it is important to have a look at how the flow patterns will alter as temperatures will rise in the near future. Most scenarios for 2050 show hardly any changes in the average daily wind speed, apart from a 2% increase per degree °C in average global temperature rise. The number of storm surges won't increase either, because the wind needs to come from the northeast (which is less likely to happen in the future) for this phenomenon to occur.

Sea Level

Between 1993 and 2004, the sea level rose with an average rate of 3 mm per year in the north-eastern part of the Atlantic Ocean, including the North Sea. Since 1900, the average rise in sea level in the North Sea has been around 2 mm per year, which sums up to about

20 cm during the last century. The absolute rise in sea level differs to the relative rise in sea level in the Netherlands because of a dropping level of the land. The level of the land has dropped, depending on the place, by 0 to 4 mm a year during the 20th century.

Because oceans react very slowly to rising air temperatures, it is very unlikely that the sea level will rise at an unprecedented pace before 2050. After this period, the sea levels will rise slightly and will continue to do this, even after the level of greenhouse gasses has stabilised. If the ice caps will start melting at a higher speed, there will be an expected rise of the sea level of a few metres. The scenarios show a rise in sea level at the Dutch coast of around 15 to 35 cm in 2050, which doesn't include the drop of the level of the land. However, all climate models show different estimations for the oceans' reaction to a rise in air temperature.

The Effects on Daily Life

The increase in precipitation levels will not only occur in the Netherlands, but in many other European countries as well. Rivers like the Meuse and Rhine originate in and flow through other countries in which they collect water. As these rivers flow through the Netherlands, there might be an increased danger of flooding. The Netherlands is fairly experienced in the field of water management, but there is only a certain limit to what a country can stand which lies below the sea level. During the summer months, on the other hand, the quantity of precipitation will decrease which could lead to inaccessible waterways for larger vessels.

A higher temperature and increased levels of Carbon Dioxide should have a beneficial effect on the Dutch agricultural production (mainly grasslands). However, the shortage of water during the summer might annul this effect in the higher parts of the Netherlands, and the excess of water during the winter might leave grasslands too marshy to cultivate.

The number of days on which heating is needed (under 17°C) for houses, office buildings and factories should decrease by 9 to 20% by 2050. On the other hand, air conditioned buildings might require more power during the summer⁷.

1.3.2. Sustainability in the Netherlands

The Central Planning Offices of the Netherlands (CBS, CPB, PBL, SCP) have set up a report⁸ on the current position of the Netherlands in regards to sustainability. "Sustainable development is a development that provides in the needs of the current generation, without

⁷ *KNMI'06 klimaatscenario's voor Nederland*. Royal Dutch Meteorological Institute (KNMI).

⁸ *Monitor Duurzaam Nederland 2009*, Statistics Netherlands (CBS).

jeopardising the ability of future generations to provide in their needs” (UN Commission Brundtland). This quote accurately describes the link between economic growth, the environment issue and the problems concerning poverty and development. The Netherlands plays its part in this link as well, and is therefore responsible for the actions taken here that have an effect elsewhere. The report focuses on several different aspects of sustainability in the Netherlands, but only a small part of this report is used for this thesis paper.

The individual aim of citizens to achieve prosperity is rarely motivated by the need for sustainability. There are several reasons for this behaviour. Individuals often do not have enough information about the consequences of their behaviour. Besides that, individuals can consciously choose to prefer ‘here and now’ to ‘elsewhere and later’. The ‘free-riders’-behaviour can play a part in this as well because an individual with a sustainable lifestyle makes sacrifices which others benefit from ‘for free’, which in turn diminishes the willingness to show sustainable behaviour.

To unify ‘here and now’ with ‘elsewhere and later’, binding agreements are needed with a clear set of rules and coordination. This task is clearly set out for the governments, seeing that it has the possibilities to create institutions that ensure citizens and companies being more aware of the consequences of their actions that reach further than ‘here and now’. In an international context the government can benefit as well by coordinating its actions. Other countries that do not act to improve sustainability could benefit from the actions taken by the Dutch government. Therefore, international coordination by international institutions is needed, seeing that most of the issues concern the entire planet (climate change, biodiversity, limited resources).

The Netherlands is an integrated part of the world. As a combined entity, Dutch citizens influence the global sustainability. What happens outside of the Netherlands will have great consequences on the sustainability of our community and vice versa. It is clear that a sustainable Netherlands can not exist in a structural unsustainable world.

According to the current global trends, the rise in average temperature will probably be more than two degrees. Although it is technically possible to limit the climate issue to a temperature rise of two degrees, the necessary global agreements to tackle this problem have not been made yet. Without these global agreements, the EU objective to reduce its carbon emissions by 20% will have been in vain. The distribution of emission rights and their corresponding costs will be one of the greatest challenges for the current global climate negotiations. The question also remains whether ‘developed’ nations are willing to contribute

to the costs of the capture and storage of CO₂ while countries like China and India will burn cheap coal on a massive scale. The ability to supply the basic needs in these countries is an improvement, but the climate change will definitely be intensified by this.

Increasing prosperity and the expansion of the global population seem to inevitably cause the deterioration of the global biodiversity. Agriculture puts a lot of stress on the amount of space and its biodiversity, mainly because of the demand for food and wood. The Netherlands is depending for a large part on the natural resources of other countries. Despite the high level of consumption, the lack of space in the Netherlands lies at a global average because of its use of highly productive agricultural areas.

For the sake of global sustainability, an increase in the efficiency of the production system is necessary. Increasing the agricultural productivity on a global scale would provide a solution to the poverty and food issue and the loss in biodiversity. An increased productivity could then be achieved on a smaller piece of land, which would lead to a smaller demand for space and the preservation of the current biodiversity. The disadvantage of this is the increase in the demand for water and nutrient supplies and an increase in the use of industrial crop protection.

Technology will not be sufficient to stop the loss of biodiversity. A decrease in meat consumption could contribute to that as well. The trend is actually reversed, seeing that the meat consumption in developed countries is increasing. When producing an animal product, such as meat, dairy or eggs, more energy is needed than for the production of organic products, such as fruit or vegetables.

2. Sustainable Food

In order to achieve a more sustainable society, it is important to improve the consumption and production of food products which are organic, free-range, ecological, Fairtrade and sustainable. All these different types of sustainable food need to be explained to gain a better understanding of the actions that need to be taken.

The term 'organic' is a production method that has been officially recognised by the European Union. The cultivation of organic products takes the natural needs of the animal into account, as well as the environment. The animals, for example, have more space to move around and receive organically produced nutrition. Vegetable organic products need to be cultivated in a natural way, without using any chemical synthetic pesticides or artificial fertilizers, which is less stressful for the environment. Organic products do not contain any chemical synthetic additives such as preservatives or additives altering the fragrance, flavour or colour. The EKO-quality mark ensures that products have been produced in an organic way in the Netherlands. SKAL is the organisation responsible for checking whether a product receives an EKO-mark. They check up on farms and factories at least once a year to see whether their whole production process is indeed organic. A non-organic ingredient can for example not be used to produce an organic product. There is another production method called organic-dynamic, which takes the influence of astrology into account and uses the position of the moon to determine the right moment to harvest the crops. This production method is not very common in the Netherlands.



The term ecological is based on the amount of damage the product will induce on the environment. Most ecological products are designed in a certain way so to take less time to degrade and have less effect on the water life. It can also refer to locally cultivated vegetables, or a certain food chain that contains less meat or more grain instead of potatoes. Ecological is guaranteed by quality marks such as Nordic Ecolabel from Scandinavia and Der Blaue Engel from Germany. It is often hard to determine whether a product is really

ecological, because not every sustainable product is 100% free of affecting the environment in some way.

Fairtrade products are bought against an honest price and according to international Fairtrade trading conditions from farmers in developing countries. This contributes to better living and working conditions for farmers in these countries. The Dutch quality mark Max Havelaar checks whether products do indeed comply with these international standards. Fairtrade products are not required to be organic or ecological, but the institutions responsible for the quality marks try to stimulate the producers to cultivate their products in a sustainable way.



Apart from these official quality marks, there are several other forms of sustainable products which have their own standards. The Marine Stewardship Council quality mark ensures sustainable fishing, to relief the stress that is put upon fish populations. Free-range products are not officially acknowledged either, but the organisation for animal protection (Dierenbescherming) in the Netherlands has set up a standard to define to what degree a certain product takes the well-being of the animal into account. Their quality mark indicates with a total of three stars whether an animal product is sustainable or not.

Certain food products have been genetically modified. This has made them immune to certain diseases, more adapted to their soil and the weather conditions and resistant to 'harmful' insects. There is no quality mark that indicates the level of influence on the crop when it comes to modification. Non-modified and organic products are healthier to a certain extent than conventional food products. Research⁹ shows that organic tomatoes, for example, contain more flavonoids than conventional tomatoes. Flavonoids are important for the human body for the metabolism of Vitamin C.

⁹ Mitchell, A, et al. (2007). *Ten-Year Comparison of the Influence of Organic and Conventional Crop Management Practices on the Content of Flavonoids in Tomatoes*, Journal of Agricultural and Food Chemistry.

Certain additives in food products that have been approved by the European Union have raised some controversy over the past few years. These so called E-numbers are used to add a certain flavour or colour to a food product or to enhance its preservation conditions. Whether or not these E-numbers cause damage to the health of the consumer remains a question that can only be answered in time, as more research has been done on the long-term effects of these additives. Some non-organic food products indicate that they contain no additives, but a quality mark has not been set up for this either.

2.1. Organic Sector Netherlands

Biologica is the Dutch organisation for organic nutrition and agriculture. It does research on the position of the organic sector in the Netherlands every year and publishes a report¹⁰ on their findings. This paragraph briefly describes the current position of the Dutch organic sector.

Consumer spending in 2008 on organic food products in the Netherlands has gone up to a total amount of € 583.4 million, which is a growth of 12.4% in comparison to 2007. Total spending on food products has gone up with 6.9% to € 27.4 billion. The market share of organic products was 2.1% in 2008, which has gone up from 2.0% in 2007 and 1.9% in 2006. If you compare these figures to a country like Austria, which went up from 5% in 2006 to 6% in 2007, it can be noted that the Netherlands is somewhat behind.

The main increase in total spending on organic food products can be attributed to the catering sector because of an increase of 96.8%. This enormous growth can be attributed to the 'Green Public Procurement' policy of the Dutch government because it wants to realise a 100% sustainable contract catering industry by 2010 (of which 40% needs to be organic). This turnover is generated in company and government restaurants, educational and care institutions and in airplanes. An enormous increase in demand can be seen here for organic eggs, fresh fruit and vegetables.

The market share of organic vegetables in comparison to conventional vegetables is currently 4.8%, which is fairly good. A change can be seen in supermarkets though, where the process of completely replacing conventional vegetables with their organic substitute has been reversed. This is mainly because of a lack of supply of organic vegetables during the winter. In the organic poultry sector, on the other hand, the increase in demand has currently even caused a lack of organic poultry farmers.

¹⁰ *Bio-Monitor Jaarrapport 2008*, Biologica.

Another change in the organic sector can be seen in the range of dairy products. Although the turnover for organic dairy products is steadily increasing, the range of products is fairly limited. The organic sector mainly produces regular dairy products. However, current research points out that the customer prefers a more diversified range. The Netherlands should move more towards Denmark, which holds a 30% market share for organic dairy products, mainly because of their diversified product range. This will probably change gradually because there is hardly any difference in price any more in comparison to conventional dairy products.

The total amount of agricultural area has increased in 2008 again to 1.9 million hectares after several years of decline. The organic agricultural area has increased as well by 7.3% to 50,435 hectares. The average company size of an organic farm is 36.2 hectares, which is about 40% larger than a conventional farm. The difference in size can be attributed to the larger amounts of space needed for the animals to walk around on and the lower output of organic vegetables per square metre.

2.2. Fairtrade Sector Netherlands

The foundation Max Havelaar is responsible for checking whether products from developing countries are Fairtrade. By supplying farmers from developing countries with a predetermined minimum price, they are able to make a better living. Buying products with a Max Havelaar quality mark in the Netherlands guarantees better working and living conditions in third world countries. Max Havelaar sets up annual reports¹¹ elaborating on the position of Fairtrade products in the Netherlands. GfK Netherlands (research facility) has done research¹² on consumer behaviour related to Fairtrade products. Both these reports are summarised to briefly describe the position of the Fairtrade sector in the Netherlands.

The number of households in the Netherlands buying Fairtrade products was 28% in 2008 which has increased by almost 50% in 2 years. This increase in buyers was realised because of a wider range of Fairtrade products and extra attention during the Fair Trade Weeks organised in 2007 and 2008. The sale of the volume of products has increased with 13% and the total revenue has increased by 28% to a total of 61 million Euros in the Netherlands. The extra income that could be provided to farmers in developing countries and their organisations was over 2 million dollars because of sales in the Netherlands in 2008.

¹¹ *Annual Report 2008* (in Dutch), Max Havelaar Foundation

¹² *Meer Fairtrade producten in de boodschappentas*, GfK Netherlands

The supermarket chain Albert Heijn was the main distribution channel for Fairtrade products. Dutch households tend to buy more Fairtrade products at supermarkets because of their wider range. Especially Lidl and the Superunie-members (purchase organisation that unifies smaller supermarkets), such as Jumbo and Plus have tried to enforce this new trend in their policy as well.

The product groups fruit, coffee and cacao products have established a firm position and form the backbone of the Fairtrade sector. 2008 was an important year for cacao products because the Dutch chocolate manufacturer Verkade introduced a Fairtrade purchase policy, which boosted the volume of Fairtrade chocolate products. The extra efforts of the organisation Fair Trade Original have caused the product groups Rice, Sugar and Culinary to differentiate themselves from conventional products. The position of Fairtrade products will be improved even more as their availability and visibility is increased in the future.

2.3. Sustainable Fishery Sector Netherlands

The Marine Stewardship Council (MSC) ensures the certification and labelling of sustainable fishery products worldwide. Although they are not an official governmental organisation, their status has been recognised and the Dutch government even supports fisheries that are undergoing the MSC certification process. MSC has published an annual report¹³, which has been briefly summarised to give an insight into the sustainable fishery sector in the Netherlands. Unfortunately, the report does not provide any information on the sales of MSC-certified products in the Netherlands.

At the start of 2009, 6 million tons of fish were certified or in the certification process, which makes up about 7% of the total fish caught in the wild. The number of individual MSC-certified products has increased from 1421 to 2366, which is an increase of 67% in a market which is currently estimated to have a value of USD 1.5 billion per year. Because MSC has set up new guidelines for their certification process, a lot of fisheries were able to get their fish certified within one year. The number of fisheries that have been certified has increased to 42 fisheries, with a record number of 14 new fisheries in 2008. The number of species of fish that is now available within the MSC-certification programme has increased to 67, of which flatfish and Atlantic cod are new for example. The Netherlands takes up the number four position with 286 products when looking at the number of available MSC products.

¹³ *Annual Report 2008/09*. Marine Stewardship Council (MSC).

The Dutch airline company KLM has introduced MSC products into their catering in the World Business Class on flights leaving from Amsterdam. They are planning on expanding this range to more flights in the future. A lot of other small and large companies have switched to MSC certified fish, such as the catering company Sodexo or the restaurant Fifteen (restaurant from Jamie Oliver).

3. Policy

To achieve a sustainable planet, an integrated global policy is needed. This chapter describes the developments in leadership and policy that have led to the drastic measures that are taken nowadays to preserve our planet.

3.1. Sustainable Development

“Sustainable development is a development that provides in the needs of the current generation, without jeopardising the ability of future generations to provide in their needs.” This quote originated from a report set up by the UN commission under the presidency of Gro Harlem Brundtland. This report became the basis for the first environment and development conference of the UN in Rio de Janeiro (Brasil) in 1992. The term ‘sustainable development’ became more widespread after this summit, and it led to two more summits in 1997 in New York and in 2002 in Johannesburg.

Although this first conference led to a global climate treaty¹⁴, the majority of the countries had only made promises that weren’t subject to penalties or restrictions. When this treaty was evaluated in 2002 in Johannesburg, the situation had only deteriorated. Poverty had increased since 1992 and the deterioration of the environment had still not been stopped. The action plan (Agenda 21) that had been set up to execute the decisions made in Rio de Janeiro needed a new impulse, therefore the conference in Johannesburg was organised.

Apart from these three summits, a separate declaration was set up by the United Nations in 2000 to improve the conditions in developing countries. This declaration is commonly known as the Millennium Development Goals by the United Nations. The goals deal with poverty and hunger, universal education, gender equality, child health, maternal health, HIV/AIDS, environmental sustainability and global partnership. These goals need to be achieved before 2015. There will be an evaluative meeting in September 2010 to see whether these goals are still within reach.

3.2. EU Sustainable Development Strategy

The EU Sustainable Development Strategy (SDS) contains objectives and corresponding actions from the European Union to increase sustainable development. Apart from united EU-actions, the strategy encourages national actions by its individual Member States. Member States need to indicate in their national strategy how they will reach their objectives

¹⁴ United Nations Framework Convention on Climate Change

in the fields of climate, energy, transport, consumption and production, natural resources, public health, social inclusion, demographic development and migration and poverty. The countries have to report to the European Commission about their progress on a regular basis.

The European Union included sustainable development in the European Treaty in 1997 as a unified objective for the first time. In 2001, the EU Member States set up the first European Sustainability Strategy. This strategy has been reviewed drastically in 2006¹⁵ and sets out 7 different challenges and corresponding targets related to sustainable development. Although not all of them are related directly to the consumption and production of sustainable food, some are mentioned to clarify the overall initiative of the EU and to show certain interdependence.

Climate Change and Clean Energy

The overall objective is to limit climate change and its costs and negative effects on society and the environment. The Kyoto Protocol commitments by the EU-15 include an 8% reduction in greenhouse gas emission by 2008 – 2012 compared to the 1990 levels. This aims at keeping the global surface average temperature below 2°C compared to the pre-industrial level. The energy policy should be consistent with these commitments in order to tackle the challenge of climate change. By 2010, 12% of energy consumption, on average, and 21% of electricity consumption should be met by renewable sources. Apart from that, 5.75% of transport fuel should consist of bio-fuels by 2010. An overall saving in final energy consumption of 9% needs to be achieved by 2017.

These objectives can be reached if the EU and its Member States undertake the following actions. Post-2012 arrangements need to be made in order to comply with the Montreal Climate Action Plan and the Kyoto Protocol. The exploitation of cost-effective emission reduction options for cars and aviation needs to be prioritised. The EU Emission trading scheme (EU ETS) needs to be reviewed. An action plan on energy efficiency needs to be adopted and implemented to achieve a 20% energy reduction by 2020. Renewable energies and bio-fuels in transport and aviation need to be promoted, taking all stakeholders into consideration (e.g. oil industry). The use of biomass needs to be promoted. The efficiency of power stations needs to be enhanced, by combining heat and power.

¹⁵ *Renewed EU Sustainable Development Strategy*, Council of the European Union.

Sustainable Transport

The overall objective is to ensure that our transport systems meet society's economic, social and environmental needs whilst minimising their undesirable impacts on the economy, society and the environment. The economic and environmental performance of all modes of transport needs to be improved. Alternatives for road transport need to be focused on. Infrastructure charging needs to be examined further, in order to reduce the total amount of transport. A long-term and coherent fuel-strategy needs to be set up by the EU and its Member States.

Sustainable Consumption and Production

The overall objective is to promote sustainable consumption and production patterns. Awareness needs to be raised among citizens and unsustainable consumption patterns need to be changed. Research needs to be done to identify and overcome barriers that are currently preventing citizens from consuming in a sustainable way. The EU needs to set up a structured process for best practice, so individual entrepreneurs and governments can learn from each other. Member States should support information campaigns that promote sustainable products coming from organic farming, Fairtrade as well as environmentally sound products.

Conservation and Management of Natural Resources

The overall objective is to improve management and avoid overexploitation of natural resources, recognising the value of ecosystem services. Natural resources cannot be used faster than their regeneration capacity. The Common Fisheries Policy and the legislative frameworks for organic farming and animal welfare need to be reviewed. Support needs to be given by the European Environment Agency on resource efficiency. Sustainable forest management needs to be strengthened. Certain marine areas and particular species need to be protected more intensively. Measures need to be taken to halt the loss of biodiversity by 2010 and beyond. Ocean and sea related policies need to be developed in a more sustainable and integrated way.

Global Poverty and Sustainable Development Challenges

The overall objective is to actively promote sustainable development worldwide and ensure that the European Union's internal and external policies are consistent with global sustainable development and its international commitments. The volume of aid needs to be raised to 0.7% of the Gross National Income by 2015 with an intermediate target of 0.56% by 2010. The effectiveness, quality and coherence of EU and Member State aid policies need to be increased by 2010.

3.3. Dutch Government Policy

After the World Summit on Sustainable Development in Johannesburg in 2002, the Dutch government set up a policy called 'Duurzame Daadkracht'¹⁶ (Sustainable Action) to improve its own level of sustainability. To see whether the Dutch policy is efficient, it was assessed by three other countries (Finland, Germany and South Africa) in a peer review¹⁷. This peer review was based on a background document¹⁸ that summarised the sustainability policy of the Netherlands.

In 2009, the Dutch government requested an analysis report called 'Monitor Duurzaam Nederland', to see what the current position is of sustainability in the Netherlands. A summary of the report is briefly given in paragraph 1.3.2. The conclusions drawn from the peer review have led to a new policy called KADO¹⁹ (Kabinetsbrede Aanpak Duurzame Ontwikkeling), which can be translated as a sustainability policy that includes all ministry departments of the Dutch government. This policy sets out 6 different themes in which sustainable development policy needs to be developed by the Dutch Ministries. The themes are briefly explained to gain a better understanding of the new policy.

1. Water/Climate Adaptation

The goal is a climate resistant construction of the Netherlands (with an emphasis on spatial dimension) and international climate resistant sustainable development.

2. Sustainable Energy

A substantial move is being made towards sustainable energy management, by decreasing the emission of greenhouse gasses by 30% by 2020 in comparison to 1990 levels, doubling the rate of energy reduction from 1% to 2% per year, increasing the share of sustainable energy from 2% to 20% of the total energy consumption by 2020 and increasing the availability of sustainable energy in developing countries.

3. Biofuels and Development

Biofuels produced in a sustainable way need to contribute to a sustainable energy management. The production of biofuels needs to be made more sustainable and international cooperation needs to be strengthened in this field, so that all biofuels are

¹⁶ *Duurzame Daadkracht*, Dutch Ministry of Housing, Spatial Planning and the Environment (VROM).

¹⁷ *A New Sustainable Development Strategy: An Opportunity Not To Be Missed*, Advisory Council for Research on Spatial Planning, Nature and the Environment (RMNO).

¹⁸ *Sustainable Development Strategy of the Netherlands*, Advisory Council for Research on Spatial Planning, Nature and the Environment (RMNO)

¹⁹ 16 May 2008, *Letter to Dutch parliament DGM/BREM2008050615*, Dutch Ministry of Housing, Spatial Planning and the Environment (VROM).

produced in a sustainable way on the international market. To promote sustainability, the focus will be on innovative technology and new crops.

4. CO₂ Capture and Storage

Large scale application of CO₂ capture and storage (CCS) needs to be implemented between 2015 and 2020 in Rijnmond and the north of the Netherlands as an intermediate step towards a sustainable energy management.

5. Biodiversity, Food and Meat

The long-term objective is a production and consumption of protein that contributes to (global) prosperity and food assurance, which remains within the capacity of the ecosystem.

6. Sustainable Building and Rebuilding

The goal is to make construction and urban development more sustainable with innovations in the process of new housing developments and the renovation of the existing stock. All new housing developments need to be energy neutral by 2020.

The Dutch government wants the Netherlands to be a sustainable society within 30 years. In order to achieve this, drastic (inter)national measures need to be taken which are known as transitions. These transitions can take up to 25 years, such as sustainable mobility. Cars pollute the environment, but gasoline is already fairly clean and cars have catalytic converters. Therefore new techniques need to be developed, such as cars on biodiesel, hydrogen or electricity. In the fourth National Environment Plan of the Netherlands²⁰ (Nationaal Milieubeleidsplan) of 2001, four different transitions were set up to realise a sustainable society:

- Transition to sustainable energy;
- Transition to sustainable use of biodiversity and natural resources;
- Transition to sustainable agriculture;
- Transition to sustainable mobility.

The transition to sustainable agriculture and parts of the transition to sustainable use of biodiversity, are covered in this thesis paper.

²⁰ *Een wereld en een wil werken aan duurzaamheid*, Dutch Ministry of Housing, Spatial Planning and the Environment (VROM).

3.3.1. Organic Farming

The Ministry of Agriculture, Nature and Food Quality (LNV) has set up a Policy Document²¹ setting out its policy on organic farming in the Netherlands. This paragraph summarises that policy and explains future activities related to organic farming.

When it comes to the planet-aspect of sustainability, organic farming does not affect the environment (nitrate and phosphate levels in water) as much as conventional farming because of the absence of pesticides in the cultivation process. When looking at the amount of greenhouse gasses emitted during the cultivation process, in some cases conventional farming is less polluting. This is mainly the case in areas where intensified production is the norm because organic farming has a lower return per area than conventional farming. In areas where the return per area is lower, such as in drier regions, the switch to organic farming often leads to higher output and therefore lower emission rates. However, the biodiversity on organic farms is often higher than on conventional farms.

In the people-aspect, organic farming seems to be well developed. Organic farms have a good image, mainly because of their improved conditions for animals, although the health of animals in organic livestock farms needs some improvement. The working conditions for farmers seem to be harder on organic farms, but the satisfaction they experience from doing 'socially appreciated' work seems to compensate for that.

The profit-aspect of organic farming still requires some work. The organic sector could still learn a lot from the conventional sector in order to raise the income of their farms.

Because organic farming was seen as a substantial contribution to a sustainable agriculture in the Netherlands, the government has been investing in it for some years now. The previous objective of the government (2005-2007) aimed at stimulating the demand for organic products, which was quite unique in Europe. All surrounding countries focused on stimulating the production side of the sector. By stimulating the demand side, the whole chain is involved and stimulated. A few Member States have experienced that although the number of organic farms has increased, the demand hasn't adjusted to the supply. This has caused organic products to end up on the market as conventional products. Another result of having not enough demand for organic products is the risk of organic farmers switching to conventional again as soon as subsidies are lowered or abolished.

²¹ *Beleidsnota Biologische Landbouwketen 2008-2011*. Dutch Ministry of Agriculture, Nature and Food Quality (LNV).

Changing consumption patterns are probably the main cause for an increased interest in organic food products because consumers are looking for an improved experience and quality, and healthier products. Because of globalisation, consumers have gained an interest in local products, which has increased their concern for the environment. This niche market is filled with, among others, organic products.

The objective of the previous government stated a 10% organic farming area in 2010 and a 5% organic market share by 2007 (derived from 10% area). This objective was too progressive and it became clear that a balance was needed between the supply and demand of organic products. Because sustainability has gained a prominent spot on the agenda of the current government, organic farming has become a part of that. Organic farming is an excellent role model for sustainable agriculture because of its transparency of production methods and its connection to society. The government wants to stimulate organic farming because it involves consumers who were previously disconnected with the production process of their food. Organic farmers often participate in multifunctional farming, because they mix care, education, recreation, tourism, nature and landscape management, product processing and house sales. This added value is often needed because of the additional price the consumer needs to pay for organic products. The connection with the society can be improved even more by being more visible to a broader audience.

Because of its relatively small size, the government sees it to be beneficial to support the professionalisation and expansion process of the organic sector. The government stimulates and facilitates by investing in the promotion of organic products, knowledge, new initiatives and assembling collaborating partners. The government wants to maintain this role until 2011 so the organic sector can grow to be a strong independent sector. Apart from that, it wants to develop and uphold laws and regulations on a European scale. As a supervisor, the government will see to it that the reliability of organic products will be maintained. And finally, the government is a role model in its policy when selecting organic products in its catering.

The new policy (2008-2011) regarding organic farming has two different ambitions; 'Connecting Organic' (Biologisch in verbinding) and 'Developing Organic' (Biologisch in ontwikkeling).

The three objectives of Connecting Organic:

- 10% of the research budget for organic farming has to be aimed at connecting the organic farming sector with issues coming from the conventional farming sector;
- 15 united initiatives coming from the organic and conventional sector have to connect to the society;
- 10 innovations from the organic sector have to be applied in the conventional sector.

The three objectives of Developing Organic:

- 10% growth per year in consumer spending on organic food products;
- 5% growth per year in organic agricultural area;
- 10% of the total yearly research budget of the Ministry of Agriculture (LNV) will be spent on organic farming.

These two ambitions have been worked out into four different thematic key objectives, which are explained below.

'Demand Stimulation and Chain Connections' has ensured the foundation of a Task Force that deals with organic farming. This Task Force represents parties from all divisions of organic farming, which improves the speed of negotiations, the exchange of knowledge and the overall growth of the sector. As mentioned before, the government wants to have a 100% sustainable purchase by 2010, of which 40% needs to be organic in its catering section. The government also aims at increasing the amount of organic food products in the medical care sector and in schools. It wants to improve the visibility of the use of organic products in restaurants and wants to stimulate more professional cooks to use organic products. Because the transition period for switching to organic farming takes up to two years, the government aims at promoting these transitional products (produced within these 2 years) as well. As of 2009, it is possible to indicate an organic ingredient in a non-organic food product on its list of ingredients. The government wants to highlight this to promote these products to more conscious consumers. And finally, the government has set up a promotion campaign based on 'Food Quality' that should create awareness among consumers. This campaign will run until 2011 and is supported by the Netherlands Nutrition Centre (Voedingscentrum).

'Development of the sector' entails the certification expenses, subsidies, tax regimes and Green Investments (Groenfonds) dealing with organic farming. It also focuses on getting the Common Agricultural Policy of the European Union to reward organic farming based on its added value on social values, ranging from animal well-being to an improvement in biodiversity. The government wants to investigate what the obstructions are for conventional

farmers to switch to organic farming. Assisting organic farmers in applying EU regulations regarding organic production is an important aspect as well. The cooperation with Biologica, which is a chain organisation, consisting of all parties related to organic food production, distribution and sales will be continued.

'Regional Force' aims at connecting local communities with organic farmers. It also wants to connect organic farmers from all over the Netherlands. By clustering the organic farmers, cooperation is stimulated.

'Knowledge and Innovation' tries to promote the dispersion and development of knowledge within the sector. The knowledge network Bioconnect has been set up several years ago and is quite unique in Europe because of the sector's influence on steering research and the distribution of knowledge. It unites different sectors within the organic sector, seeing that organic livestock farmers can learn from organic vegetable farmers. This key objective also focuses on the exchange of knowledge between the organic and the conventional sector.

3.3.2. Sustainable Fishery

The Ministry of Agriculture, Nature and Food Quality (LNV) has set up an informative brochure²² describing the view on the current Common Fishery Policy (2003 – 2012) and a report²³ describing the view on the future Common Fishery Policy (2013 – 2022). Seeing that sustainable fishery is an important aspect of sustainable consumption and production of food products, both editions have been summarised to give an insight into the Dutch policy.

View on current policy

The Netherlands has not only been fighting the water for thousands of years, we have also been harvesting from the water. This has caused the tradition of fishery to have been engrained into the Dutch culture. Because fish is healthy and tasteful, it is promoted by food experts and the demand is therefore rising. The consumer wants to make conscious choices about the fish that is bought. Therefore, a transition is needed to reduce the pressure on fishery to maintain healthy fish stocks on the one side and to maintain a profitable fishery sector on the other side. Subsidies for the fishery sector are arranged according to the tender-principle. All applications for subsidies are judged and arranged by a special Fishery Innovation Platform according to their innovativeness and their contribution to sustainable

²² *Perspectief voor een duurzame visserij*. Dutch Ministry of Agriculture, Nature and Food Quality (LNV).

²³ *Vis, als duurzaam kapitaal*. Dutch Ministry of Agriculture, Nature and Food Quality (LNV).

fishery. This Platform has been set up to support innovation in fishery in the fields of energy reduction, sea environment protection and the enhancement of quality and revenue.

Fishery in the North Sea has to deal with a recovery plan for plaice and sole and has therefore an overcapacity. As a result, the government is forced to cut back the amount of fishing boats. The impact on the economy and employment is very great when these cutbacks are made. Therefore, a certain amount of the annual budget has been reserved for compensating these fishermen and re-educating them. After the round of cutbacks is over, investments will be made in new sustainable techniques in fishery.

View on future policy

Because the Common Fishery Policy (CFP) will be reviewed in 2012, the Dutch Ministry of LNV has set up several recommendations on how this policy could be more effective and sustainable. They have set up three key objectives on which the current policy needs to be altered.

The first objective deals with a sustainable use of the ecological capital. The main threat to the fish stocks is overfishing. Therefore, the policy needs to aim at having a sustainable ecosystem in the sea. The policy needs to be integrated with other fields of policy, which deal with the protection of birds for example. The objectives of the CFP need to be extended to waters outside of the EU where EU fishing boats are active so developing countries do not experience negative effects. Discards (throwing fish overboard which is not within quota) need to be banned in the new policy, so no edible fish is wasted any longer. Fishing techniques need to be altered so they have less influence on the ecosystem (e.g. nets dragging across the ocean floor). A new strategy needs to be developed for the sector in which fish is reared in captivity.

The second objective deals with the enhancement of the market. A certification method needs to be set up to identify sustainable fishery (apart from MSC quality mark). The fishery sector needs to alter its approach to the demand coming from consumers, instead of catching fish from a supply perspective. This can be done by stressing the added value (healthy, tasteful) of fish which is caught in the wild. Supporting the price of fish and setting up tariffs to keep out competitors is no longer the best way to keep the sector profitable. Subsidies and support should aim more at cost reduction and the added value of fish caught in the wild. The new CFP should leave more responsibility with the sector itself, so entrepreneurship is stimulated. Reorganising the sector by cutting back in the total amount of ships is not effective anymore because technological developments have caused the

remaining ships to increase their productivity. In cases, such as the overcapacity for blue finned tuna, temporary reorganisation is still optional.

The third objective deals with the adaptation of the decision-making to long-term goals. Decisions regarding fishery should be split up into a general and a regional policy, because a lot of problems can often be dealt with more efficiently on a regional level. The knowledge of fishermen and scientists needs to be taken more into consideration when setting up the new CFP. Multi-annual plans for certain species of fish and regions need to be extended and simplified.

3.3.3. Sustainable Food

The Ministry of Agriculture, Nature and Food Quality (LNV) has set up a Policy Document²⁴ setting out the challenges, the future image and its policy on sustainable food production and consumption, which connects to theme 5 of the KADO policy. This paragraph summarises this policy and shows the actions that will be taken in the future.

Tasks

There lies a global, European and national task in front of us to make our food system sustainable. At this point in time, the Netherlands has a higher average income per capita than ever before. On the other hand, there are over 1 billion people that have to live off less than 1 dollar per day. In 2007, there were just as many people with overweight as there were with malnutrition. 17% of the inhabitants of all developed countries do still not receive enough daily healthy nutrition to live a healthy existence. Apart from that, food is lost in every part of the chain; leading up to 30-50% in the Netherlands (this excludes the disposal of food by consumers).

The production and consumption of food puts a lot of stress on the global ecosystem, referring to the availability of space, the effects on biodiversity, the massive usage of water, erosion, the pollution of water and soil and the emission of greenhouse gasses. Besides that, there is a mineral problem, as Western soil is being enriched with minerals coming from other parts of the planet in animal feed and other food products.

The demand for fish, meat and dairy products is climbing steadily on a global scale because of an increase in global population and prosperity. As the population and prosperity in China and India increases, their demand for meat and dairy products grows respectively. The FAO

²⁴ *Nota Duurzaam Voedsel*. Dutch Ministry of Agriculture, Nature and Food Quality (LNV)

(agriculture and food organisation of UN) is expecting a meat consumption of around 450 billion kilos of meat per year in 2050, which is the double amount of the current consumption. Although meat contains a high level of protein, the production of it is less efficient than the production of vegetable products. A lot of people on our planet are involved in meat production though, and it is seen in many cultures as an essential part of a meal. Only producing vegetable food is therefore not a solution either. There needs to be a well balanced agricultural system that provides room for both animal and vegetable food production.

Nowadays, people see food in a different way, as the average percentage on food expenditure has dropped. The waste of food is considered as normal and it is estimated that consumers throw out €1.6 billion worth in food per year. Therefore, the waste of food needs to be prevented by making better use of food remainders. As the world is slowly urbanising, people live further away from the production of their food and are therefore alienated in a physical and psychological way. Apart from that, the consumer has trouble understanding what sustainable food exactly is because of an abundance of scattered information sources. Because the demand for a higher quality of life is increasing in developed countries, the need for high quality and sustainable food is increasing as well.

The growing demand for resources and energy can have a negative effect on global food prices, because of higher costs for fuel or fertilisers for example. The climate change can cause larger extremes in the weather conditions, which could lead to a threat to the prices and the availability of food. The yield of certain agricultural areas needs to be increased by introducing new technologies and thereby ennobling the land.

The government, business community and consumers need to be involved in taking on these challenges. The Netherlands can play an important role in this, because of its advanced Research Centre at Wageningen University and its strong international position as exporter of agricultural products.

The contribution of Netherlands needs to focus on:

- More efficient use of space, water, energy and transport;
- Decreasing the negative effects of food production on the emission of contaminating substances, CO₂ and the exhaustion of minerals;
- Sustainable use of raw materials whereby the fertility of the soil and biodiversity are improved;
- Preventing the loss of protein sources and the waste of food;
- Investing in innovation for the improvement and sustainability of agriculture and food production, specifically in developing countries.

Vision

The answer to all these challenges is the Netherlands making its food production and consumption sustainable in every aspect (people, planet and profit) and taking up a leading position in Europe when realising sustainable development. In that vision, the Netherlands will have food systems aimed at sustainability, which fit within the frameworks of the EU and the WTO (World Trade Organisation). In the field of people, it is about a food system with sustainable and healthy food which is available to all Dutch consumers. In the field of planet, it is about a food system that respects the boundaries and the vitality of the global ecosystem. In the field of profit it is about an innovative and dynamic agricultural food chain that can compete on a global market with other top class products.

Ambition

The government has set up three key objectives to take on these challenges and to turn this vision into reality before 2015.

'Stimulating sustainable innovations in the Dutch agricultural food complex' wants to stimulate the availability of sustainable food in places which formerly only supplied non-sustainable options (theme parks, nursing homes, canteens). A platform for sustainable food will supply space to discuss new innovations and exchange knowledge. New initiatives having animal well-being, sustainable fishery, sustainable vegetable greenhouses or new technologies as a key objective, will be stimulated. Regulations regarding patent rights should not limit new inventions when it comes to sustainability. Innovations in the field of meat replacements will be stimulated, such as products based on algae, insects or even artificial meat (artificially produced muscle tissue). Alternatives for soy products as a protein base for animal feed need to be found. Furthermore, the total amount of waste food needs to be reduced by 20% by the year 2015.

'Enabling and enticing Dutch consumers to sustainable (and healthy) food consumption' entails groups of consumers willing to eat more sustainable (and healthy) products, but often find the range to limited, complicated or expensive. Deploying different forms of marketing by different parties at the end of the chain, such as supermarkets and the catering industry, could contribute to stimulate this behaviour. Several campaigns with the help of the Netherlands Nutrition Centre will be set up to create awareness. Reconnecting children at schools with food, by implementing taste lessons should make them more conscious. Connecting citizens with local food products also helps to make them more aware of their consumption patterns. The recognizability of sustainable food needs to be improved as well by limiting the amount of quality marks and other logos and turning them into a European standard. A toolbox will be developed to measure the values of the consumers and the process of sustainability.

'Stimulating the international agenda' is about the Common Agricultural Policy and the Common Fishery Policy needing to accommodate innovative and sustainable entrepreneurship. On a global scale, food assurance needs to be achieved for developing countries.

3.3.4. Government Research

In 2006, the Dutch government had a research²⁵ done by LEI (Research Centre of Wageningen University) on the effect of a price reduction of organic products in comparison to conventional products. The price of eight organic products (eggs, milk, potatoes, rice, muesli, pork, beef mince and mushrooms) were reduced to see whether a permanent price reduction would lead to higher sales of organic products.

The results of this research show that consumers take longer to alter their perception of the prices and often under- or overestimate the price of organic or conventional products. The perception of price needs to be altered before the actual behaviour can change. Although consumers associate organic food with environmentally and animal friendly, the main consumption attributes at the moment of purchase are taste, healthiness and quality. The purchase motive 'I mostly buy this product' seems to be important as well. A high score on purchase motives is strongly related to a high willingness to pay and the motive 'taste' is seen as the most important one. The 'environmentally-friendly' attribute plays a modest role in the purchase of organic products. This could explain why consumers are only willing to pay more for organic products to a limited extent. Consumers indicate that they are willing to

²⁵ *Een Biologisch Prijsexperiment; Grenzen in zicht?*. Research Institute Wageningen University (LEI).

pay 20-25% more for organic products. The price reduction in the experiment has led to higher sales and higher total revenue, which is called an elastic demand in economic terms. Reducing the price even more would lead to lower total revenue for some products, while the sales of others would only increase. The research shows that a price reduction is one tool to raise the sale and total revenue of organic products, but other actions are needed as well.

3.3.5. Government Campaign

The Ministry of LNV has instructed the Netherlands Nutrition Centre to set up a campaign based on 'Food Quality' to raise more awareness among consumers about their food consumption. The campaign entails the communication of several questions via different media (TV, radio, magazines and Internet). The questions are aimed at the influence of food consumption on the climate, food waste, animal well-being and Fairtrade. The campaign directs consumers to the website of the Netherlands Nutrition Centre²⁶, on which all the questions are explained.

The following questions appear in the campaign:

- What does your food do to the climate?
- Do you cook half a meal for the rubbish bin?
- How much space did my schnitzel have?
- Have my chicken legs had a free range?
- Where did my salmon fillet swim?
- Did my steak stand in the meadow?
- Did the farmer get an honest price?
- Where was my egg laid?
- Where does my vegetable come from?



When clicking on one of the aforementioned questions on the website, a short explanation is given on that particular topic. Most topics include one or several charts showing the criteria that should be considered when buying a food product. Dutch consumers show a growing interest in topics such as environment, animal well-being and Fairtrade in relation to their food. It is often hard though to make conscious decisions about these subjects in stores because information is often missing. Therefore, consumers often have to depend on their own judgements and general knowledge. This campaign is aimed at improving this knowledge and increasing the sales of sustainable food.

²⁶ www.voedingscentrum.nl

3.4. Supermarket Policy

Supermarket chains in the Netherlands have adapted their policy to become more sustainable as well. As an example, this paragraph will briefly describe the policies of three different supermarket chains to show what their contribution is to sustainability.

Albert Heijn

Albert Heijn has set up its own product line in 2009 called 'Puur & Eerlijk' (Pure & Honest) to unite five different categories of sustainable food. They have united all organic, Fairtrade, free range, ecological and sustainable fishery products under one name. The logo of this product range can be easily distinguished from conventional products and therefore improves the visibility of sustainable products. The different forms of sustainable products all have their own colour to make them more recognisable as well. Ahold, the parent company of Albert Heijn, has set up a Corporate Responsibility Report²⁷ on 2008.



Jumbo

Jumbo has set up its own product line as well, called 'Jumbo Bewust' (Jumbo Conscious). This product line contains different sorts of meat from animals which were reared in better living conditions. Their organic products can be recognised by the 'Bio+ label' and their Fairtrade products come from Fair Trade Original. They have published a brochure²⁸ on Social Responsibility, which can be downloaded from their website.

Super de Boer

Super de Boer has a Sustainability Report²⁹ as well which explains all their activities regarding sustainability. Although they have a wide range of sustainable products in their stores, an own product line hasn't been set up yet. Because Super de Boer is currently (during the writing process of this thesis paper) in a merger with Jumbo, their corporate social responsibility strategy will probably change in the future.

CBL

The Central Bureau of Food Products (Centraal Bureau Levensmiddelen) represents the supermarkets in their negotiations regarding sustainability. They have set up a website³⁰

²⁷ www.reporting2008.ahold.com/

²⁸ www.jumbosupermarkten.nl/Global/pdf-bestanden/jumbo-brochure-mvo-def.pdf

²⁹ <http://imprima.turnpages.com/DS1/public/slot00051/pdf/compleet.pdf>

³⁰ www.passievoorfood.nl/

showing all new initiatives and news regarding supermarkets. Topics such as organic food, the environment, sustainability and animal well-being are extensively dealt with on this website. CBL is also actively involved in the governmental platform on sustainable food.

3.4.1. Figures on Supermarkets

The Environment Protection Organisation (Milieudefensie) and Solidaridad count the number of organic and Fairtrade products in supermarket chains every year. By doing this, they want to stimulate a range increase of organic and Fairtrade products in the conventional supermarkets. Their report of 2009³¹ shows the growth and decline of these products over the past few years. Volunteers have helped to count all the products that were in the shelves in 523 supermarkets. It has to be noted though, that the count does not include the total number of products in the store. The percentage of organic and Fairtrade products is therefore not represented in comparison to the total number of products.

Organic products

In 2009, there were on average 78 organic products available in the Dutch supermarkets. It has to be noted though that this increase in products has not been an ongoing trend during the past decade. The number of organic products has dropped in 2004 to 2006, from 68 products to 58 products. After 2006, the average number of products has increased to a peak in 2009.

Currently the supermarket chain Plus still holds the number one position, with an average of 175 organic products. Jumbo takes up second place, with 164 products, Super de Boer is third with 162 products and Albert Heijn is fourth with 135 products. In 2008, Albert Heijn was still in third place but because the average number of organic products of Super de Boer has increased by 64%, they took over third place.

The spread of organic products varies a lot among the different stores. The number one position of Plus can be attributed to a few large stores that offer a wide range of products, while smaller stores only offer a very limited range of organic products. Albert Heijn, on the other hand, has fewer products in total, but almost all of their stores offer the same range of organic products. In the top-10 of stores with the highest number of organic products, Plus is very well represented with at least 5 stores. Groningen seems to be a very competitive city when it comes to organic products, seeing that three of its stores from Plus, Jumbo and Super de Boer in the top-10.

³¹ *EKO-tellingen 2009*, Milieudefensie and Solidaridad

Fairtrade products

The average number of Fairtrade products has grown from 9 products in 2008 to 15 products in 2009. The increase in Fairtrade products can be attributed to the new Fairtrade purchase policy of Verkade. With an average of 48 products, Jumbo is the supermarket with the largest number of Fairtrade products. Plus comes in second place with 26 products, Super de Boer in third with 25 products and Albert Heijn in fourth with 23 products. Jumbo has five stores in the top-10, and the city Groningen has once more three stores of Jumbo and Super de Boer who have the largest range in Fairtrade products.



Solidaridad

4. Research

In order to find out what the general knowledge, attitude and behaviour was in regards to sustainable development and sustainable food, a survey was set up which can be found in Appendix IV. The target group for the survey was split up into two different groups. The first group (Group Online) filled out the survey online and had no prior extensive knowledge about sustainability. The second group (Group R2C) participated in 'The Road to Copenhagen', which was an event organised by Essent to promote electric mobility. This second group mainly consisted of respondents who were in some way related to sustainability through their work or studies. Both groups were equally represented, with 40 respondents for the first group and 40 respondents for the second group coming to a total of 80 respondents.

Seeing that the government aims at stimulating young consumers to buy their products in a more sustainable way, most of the respondents of both groups were between 20 and 30 years old. Most respondents were fairly well educated and were either currently studying or have recently finished a higher education (HBO) or a universal education (WO). I assumed that students and young working respondents with a higher education would be the most well-informed group in our society and therefore I analysed their knowledge, attitude and behaviour.

Sustainable supermarkets

The majority of the respondents is convinced that Albert Heijn is the most sustainable supermarket chain in the Netherlands. Some other supermarket chains were mentioned, but with 34 respondents mentioning Albert Heijn, it can be noted that they are generally seen as the most sustainable supermarket in the Netherlands. If you compare these results to the outcome of the figures in paragraph 4.4.1 it is strange to see that Jumbo or Plus were not mentioned more often. This could be explained because of three reasons.

The first reason is the position of Albert Heijn as market leader. The report of the counting of organic and Fairtrade food products notes that Albert Heijn has 780 stores, in comparison to 273 of Plus and 122 of Jumbo. A majority of the respondents buys their groceries regularly at Albert Heijn and would therefore not know about the policy on sustainable products in other stores. The second reason is the average range of sustainable products within the Albert Heijn stores, which does not vary much between the individual stores. The third reason could be the introduction of the sustainability range 'Puur & Eerlijk', which has increased the visibility of sustainable products. Many of the respondents might have noticed this new range and are therefore more inclined to mention Albert Heijn as the most sustainable supermarket.

Purchase motives

The main reasons to buy sustainable food were all related to contributing to a more sustainable planet. Some respondents mentioned that organic products are healthier or more tasteful as well.

The number one reason that prevented the respondents from buying sustainable food was price, seeing that sustainable food is more expensive than its conventional version. The availability and the range of sustainable products were mentioned as well, because a large number of products is simply not available yet in the Netherlands in a sustainable version. This also depends on the range of sustainable products that is offered by the supermarket in question. Some respondents have even mentioned laziness as well as a reason for not buying sustainable products, because it simply takes up too much time to find certain products in the supermarket and to find out whether a product is more sustainable than others. A lack of interest, time or knowledge could explain this response. Some of the respondents even doubted whether organic and sustainable food is healthier than its conventional version. This could also be explained because of a lack of knowledge about sustainable food and its added value to the consumer's health.

Sustainable food

Almost 50% of the respondents (38) mentioned that they bought no sustainable food whatsoever or at least not on a regular basis. The products that were mentioned by the respondents that did buy sustainable food varied from any sustainable product possibly imaginable. While some only bought organic products, others were more motivated to buy Fairtrade products. It can be noted though, that some of the respondents that did buy sustainable products, bought products in every possible product group, while others only bought products from one or two product groups.

4.1. Behaviour and Attitude

All respondents were asked to indicate to what degree they agreed on 25 statements related to sustainability on a scale of 1 (disagree) to 5 (agree). All these statements were set up in such a way that the knowledge, attitude and behaviour of the respondents could be measured to a certain degree. All the results of the statements were added in Appendix V.

4.1.1. Behaviour

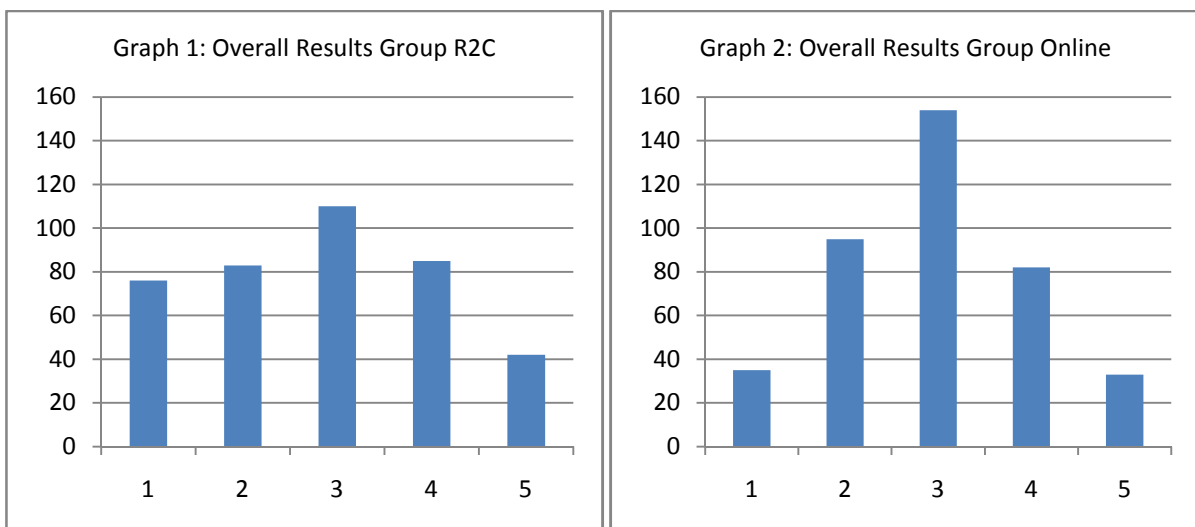
The first 8 statements were set up to analyse the behaviour of the respondent. The first statement gives the respondent the opportunity to indicate to what degree his own lifestyle is sustainable. The next 7 statements are aimed at analysing specific daily activities to see whether the lifestyle is indeed sustainable. Because these 7 statements could be answered on a scale of 1 to 5, a total score of 35 credits (7×5 credits) could be achieved for a sustainable lifestyle. This does obviously not cover every aspect of the respondent's life, but it gives a fair indication of the level of sustainability of his or her lifestyle. Because the first statement is aimed at judging the respondent's own level of sustainability, these two aspects could be compared. The self-image is on the one side and the actual behaviour is on the other side. An example is given below to clarify this.

If respondent A indicates that he believes that his own lifestyle (statement 1) can be rated with a 3 on a scale of 5, he receives 60% of those total 35 credits, so 21 credits. If the ratings for his actual behaviour (statements 2-8) show that he has only achieved 18 credits, he has overestimated his own level of sustainability because his behaviour is worse than his self-image. If the rating for his actual behaviour would have shown 35 credits, he has underestimated his own level of sustainability because his behaviour is better than his self-image.

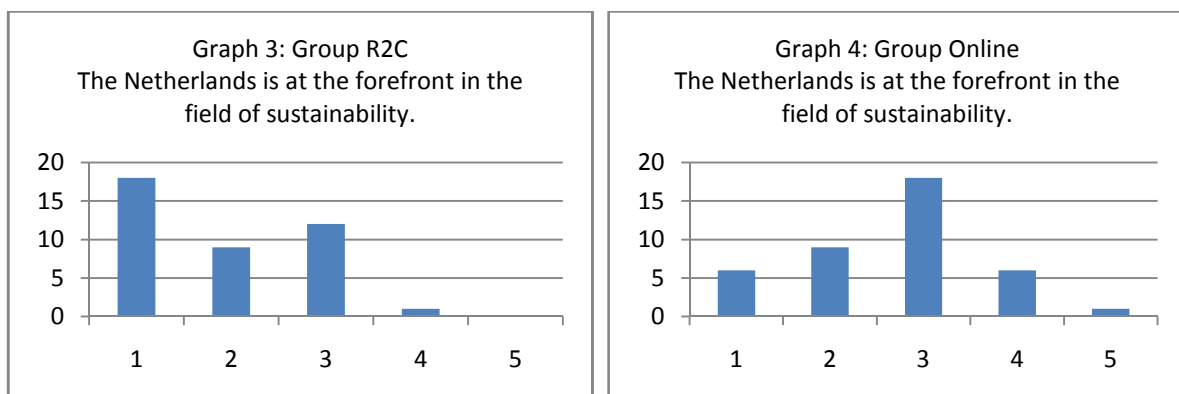
By using this calculation, I could measure whether every respondent over- or underestimated his own level of sustainability. The average of the results of all respondents shows that they underestimated their own level of sustainability by 4.03 credits. This means that the average respondent lives a more sustainable life than he might actually know. It was remarkable to see that the respondents from Group Online (no prior knowledge of sustainability) underestimated their own level of sustainability to a larger degree than the respondents from Group R2C (with prior knowledge of sustainability), although both groups scored almost equal in their average rating for their behaviour. This means that the respondents from both groups are equally sustainable in their lifestyle on average, but the respondents who had no prior knowledge of sustainability have underestimated their own behaviour to a larger degree than the ones who did have prior knowledge. It was also remarkable to see that the behaviour of Group R2C is not more sustainable than Group Online, although most of them were quite well informed about the consequences of their own behaviour. Some calculations were done on the average responses per behaviour-statements, but the variations were too spread out to draw any conclusions.

4.1.2. Attitude towards Sustainability in General

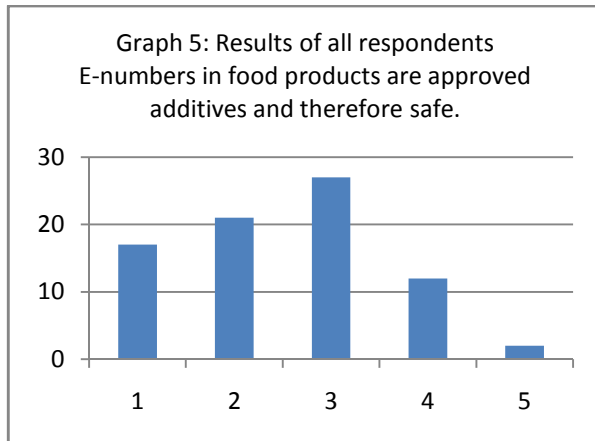
The next statements (9, 10, 11, 13, 15, 19, 21, 22, 23 and 25) aimed at analysing the attitude and knowledge of the respondents on sustainability in general. The statements were fairly controversial to provoke answers that could go either way depending on the opinion of the respondent. Most statements required some background knowledge as well, to see what this would do to the results. Group Online stated '3' to more statements than Group R2C (see graph 1 and 2), which could either mean that they were indifferent to that particular statement or they simply lacked the knowledge to answer that statement. The fact that the results of Group R2C were more spread out probably indicates that they had more background knowledge on these particular subjects and that they held a stronger view on these subjects.



The views of these two groups showed some similarities and some differences, but mainly the statements that required some background knowledge showed a larger difference as can be seen in graph 3 and 4. Group R2C is less convinced that the Netherlands is doing well in the field of sustainability because they have acquired more knowledge about this subject than Group Online.

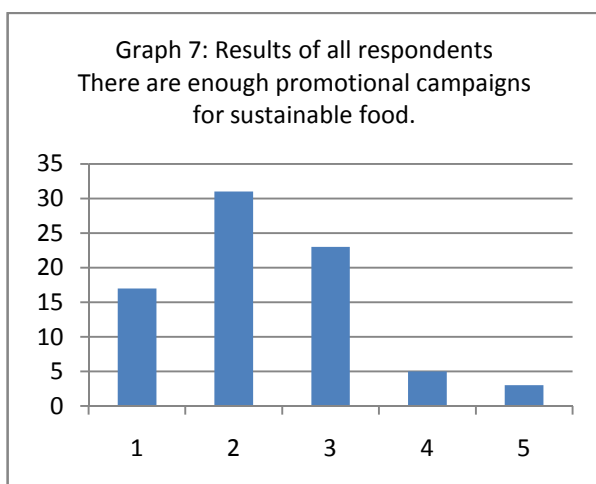
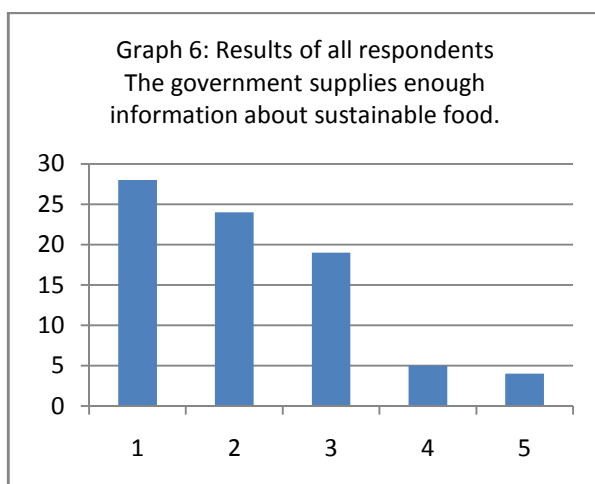


Similarities could be seen, for example, in the statement that dealt with additives approved by the European Union, which can be seen in graph 5. Both groups were more inclined to disagree with the statement than to agree with it. Both groups are therefore sceptical to a certain degree about the level of trust that can be attributed to the government departments responsible for the approval of these additives.

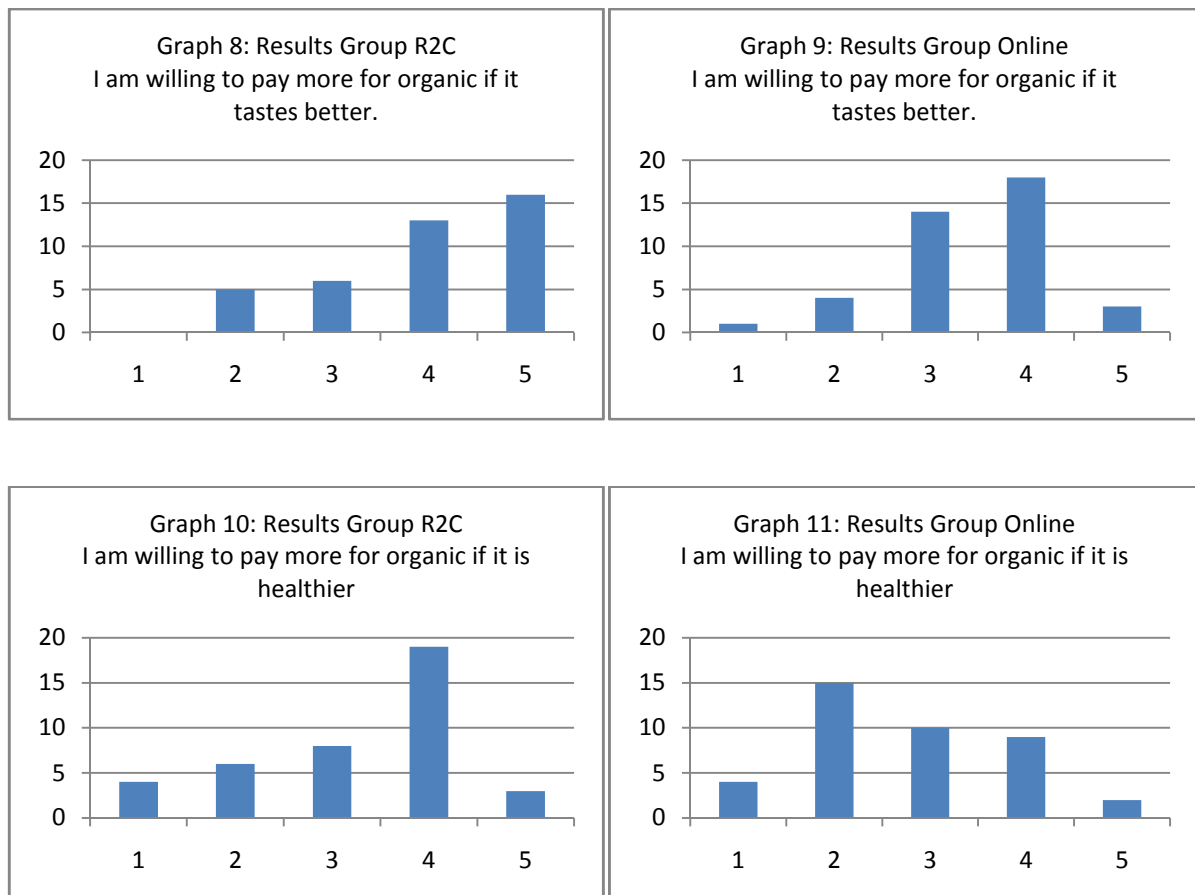


4.1.3. Attitude towards Sustainable Food

Getting to know what the general opinion was on the information supply of the government on sustainable food, two statements were set up (12, 14). The remaining statements (16, 17, 18, 19 and 24) measured the motives and willingness to buy more sustainable food and to possibly cultivate one's own food. The general opinion of both groups on the statements about the information supply and promotional campaigns of the government on sustainable food is fairly unanimous. Both groups disagree (see graph 6 and 7) with the information supply and the promotional campaigns being sufficient in the Netherlands.



When asked whether the respondent was willing to pay more for organic products if they are healthier or more tasteful, some discrepancy could be seen. While both groups fairly agreed that they were willing to pay more for organic products if they were more tasteful, Group Online was not as willing to pay more if organic products are healthier (see graph 8, 9, 10 and 11). This could be explained by a lack of knowledge about organic food of Group Online.



This paragraph has shown that the general knowledge about sustainability can vary a lot between respondents because of different backgrounds. When increasing this knowledge, there seems to be more willingness to adapt to new consumption patterns to improve sustainable consumption. Although the level of sustainability of the behaviour of both groups needs a lot of improvement, it can be said though that Group R2C is more open-minded to change.

4.2. Consumer Groups

The conclusions drawn from the survey have given a fair view of how purchase motives and consumption patterns work for sustainable products. By looking at the different purchase motives when buying groceries, consumers can be divided into different groups when looking at their consumption patterns.

Group 1: Conscious consumers with a large budget

The first group of consumers wants to contribute to a more sustainable planet because they are convinced that a change in consumption patterns is needed to improve the quality of life of both people and animals. This group is the ideal group in regards to sustainability and can function as a role model for other groups. They have a budget that allows extra expenses for more expensive sustainable food and they don't mind spending extra time and attention to attain these products. They will even visit other venues, such as organic supermarkets, organic markets and Fairtrade shops (Wereldwinkel) to acquire sustainable food. Whether this knowledge and behaviour was acquired through work, study or personal motivation is not relevant.

The consumption pattern of group 1 can be improved if the range and availability of sustainable food is extended.

Group 2: Conscious consumers with a small budget

This group has the same motivation and knowledge as the first group and is therefore willing to change its consumption pattern as well. They are restricted by a smaller budget though, which prevents them from buying all the sustainable products that they would want to buy. They will only buy a sustainable food product if it lies within their financial capacity. If the consumers from this group would start earning more money, they would automatically move to group 1.

The consumption pattern of group 2 can be improved by having lower prices for sustainable food.

Group 3: Consumers with a lack of knowledge

This group often lacks a basic amount of knowledge about the effects of their own behaviour on the environment. They often buy the same products that they have been buying regularly for years. They are open-minded to inform themselves or be informed about more sustainable consumption patterns but might have difficulties accessing this information. This is the perfect target group for a campaign on sustainable food.

If more consumers within this group would have easy access to the right information, they could start a snowball effect. As one consumer within this group informs a second, this second consumer could inform a third, and so on. If the majority of this group holds a small part of information, the sharing process could lead to the whole group being informed sufficiently. This group could also be stimulated to buy more sustainable products by increasing the visibility and focusing on the added value of sustainable food, such as more tasteful or healthier. Whether these consumers have access to a small or large budget is not relevant, because they could either move to group 1 or group 2 if they are convinced of the advantages of buying sustainable food.

The consumption pattern of group 3 can be improved by supplying them with more information on sustainable food and the effects of consumption patterns on the environment.

Group 4: Consumers unwilling to change

This last group consists of consumers that lack a certain amount of knowledge and have no interest in changing their consumption pattern. They are not very open-minded when it comes to information about sustainability and are often sceptical about sustainable products. Getting them to buy more sustainable food in their regular supermarkets can probably only be achieved by lowering the prices.

The consumption pattern of group 4 can be improved by increasing the range of sustainable food that is cheaper than its conventional version.

5. Conclusions and Recommendations

The main research question of this thesis paper is: “How effective is the communication and promotion policy of the Dutch government in regards to sustainable food in the Netherlands?”

Before this question can be answered, an explanation is required of why the government would want to achieve sustainable food production and consumption. The first chapter has already explained that developments over the past 150 years have led to the industrialisation of our planet. This industrialisation has improved the living conditions and the availability of food for a large amount of people on our planet. But the down side of this development has only recently been acknowledged. The global ecosystem and its climate are endangered because of the increasing depletion of natural resources. Besides that, the gap between rich and poor seems to be far greater than ever. As the economy and the global population are increasing, the stress on our planet is increasing as well. Consumers are no longer connected to their food production and often have little knowledge of the effects of their own behaviour. Consumers also tend to think more in terms of ‘here and now’ instead of ‘elsewhere and later’. Therefore, change is needed. Consumers, the business community and the government need to collaborate to achieve a sustainable food supply that can provide the current and future generations in all their needs.

The next question that needs to be answered is how consumers can actually contribute to sustainable food consumption. The second chapter shows that there are a lot of different forms of sustainable food products and quality marks. However, this range of quality marks causes confusion and a certain degree of distrust towards their validity. Therefore, legislation is needed to simplify the system of quality marks. The market position of sustainable food (organic, Fairtrade and sustainable fishery) in the Netherlands is still quite small in comparison to neighbouring countries, but increasing nonetheless. A growing interest of companies in sustainable food, such as Verkade and KLM, are a good start to spread more awareness. The initiative of Albert Heijn to set up a product range that combines all forms of sustainable food increases the visibility and is therefore a good contribution as well. If other supermarkets would follow this trend, the consumer wouldn’t even have to put in any effort into finding sustainable food. If the sales of sustainable food products would then increase, the range of products could be extended as well which will have an upward spiral effect.

The policy of the Ministry of Agriculture, Nature and Food Quality is fairly ambitious when it comes to achieving sustainable food consumption. The Dutch government wants to have a leading position in the field of sustainable food production and consumption within a few

years by making its consumers more aware about the consequences of their actions and connecting them to the production of their food.

An advertising campaign was set up by the Dutch Nutrition Centre aimed at confronting consumers with the consequences of their behaviour. The campaign directs its viewers, listeners and readers to the website to inform them about the questions that are asked in the advertisements. The questions cause a certain level of curiosity which should lead to consumers visiting the website. Whether or not consumers visit this website, it still remains questionable whether this will actually lead to a change in behaviour.

This campaign seems to be directed at consumers who already have some background knowledge about these topics (group 1 & 2 as described in chapter 4), seeing that the questions provide no background information in the advertisement itself whatsoever. A campaign on sustainable food should however be aimed at consumers from group 3 who are open-minded to informing themselves about sustainability, but have trouble accessing the right information. Chapter 4 also shows that consumers with no background knowledge (Group Online) would be more willing to buy sustainable products if they are more tasteful. The campaign tries to trigger the emotion 'guilt' because of its confrontation with the behaviour of the consumer. It might be better if the campaign was directed at the added value of sustainable food, such as more tasteful or healthier.

As mentioned before, consumers think more in terms of 'here and now' instead of 'elsewhere and later'. Changing the mindset about eating less protein is extremely hard for example. If a consumer can't actually see the direct consequences of his eating habits, it is hard to convince him that he is contributing to a less sustainable society. Informing consumers about the effects of the production of protein rich products should be a key objective. Consumers wouldn't have to turn into vegetarians all at once, but a small decrease in meat consumption has enormous beneficial effects on sustainability.

The focus should also be more on connecting consumers to their local environments and showing the benefits of sustainable consumption in the short term. By showing consumers that their local supermarkets are supplied with food from local farmers, they would be more willing to connect themselves to sustainable food. Schools should be connected to local farms as well, so that young students can see the advantages of sustainable food production within their own region. In return, they can motivate their own surroundings, in terms of family and friends, to buy the local sustainable products. Supermarkets should be sources of information, because of their accessibility of all social classes in Dutch society. Employees of

supermarkets and advertisements within the supermarket should inform the customers about sustainable choices and the possibilities of having an eating pattern which is completely sustainable. The excess of food waste should be dealt with in supermarkets as well. Although the main concern of a supermarket is profit, the government should stimulate supermarkets to promote the prevention of food waste among their customers.

The image of sustainable products, such as organic food, has been fairly bad because it is seen as dull. Sustainable food should therefore be made 'cool'. If well-known people in the Netherlands would start promoting sustainable food, a lot of consumers would be motivated to follow their example. Jamie Oliver has proven the same thing in the UK by making sustainable food look cool, healthy and tasteful. Caution is needed though when selecting these famous people, because the wrong person could cause a majority of the consumers refusing to follow this trend.

Although the current policy of the government is effective to some extent, it requires much more attention and change to achieve the objectives that were set. On the other hand, sustainable development is not just a responsibility of the government on its own. It is a responsibility of every Dutch consumer, including you as a reader and me as the author.

Justification of Research Methods

All sources of information that were used during the research and writing process of this thesis paper were either official governmental sources or sources officially recognised by the government. Some information of environmental organisations might not be official, but these organisations have such a widespread base of support that it can be said that they are official sources as well.

The time limit of this thesis paper has caused two limitations in the research process. The desk research could have been extended to some degree if the market position of sustainable products in the Netherlands would have been compared to other European countries. By comparing their policy to the policy of the Netherlands, it would have been possible to analyse why some countries have a better market position and which of these policy objectives could be taken over by the Netherlands. When looking at the governmental energy policy in Germany for example, it can be noted that their subsidy programme has increased the implementation of sustainable energy sources to a much larger extent than in the Netherlands. Similar policies could have led to an increase of the market share of sustainable products in other countries.

The other limitation of the research can be found in the field research. As there were only limited means available to research the knowledge, attitude and behaviour of the respondents, not all classes within the Dutch population were covered. The research that was done mainly covers the knowledge, attitude and behaviour of young consumers between the ages of 20 and 30. Most of the respondents also had a higher education and most of them were still in school or university while the survey was held. The results of the survey are probably also influenced by a limited student budget of most of the respondents. The research would have represented the average Dutch population more closely if all classes were asked about their opinion in the survey.

Some conclusions and recommendations cannot be based on official information sources or the research because they were based either on general knowledge or on certain personal links that were made because of an excess of information that was covered during the research process.

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www.msc.org (Organisation that recognises and rewards sustainable fishing)

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www.biokennis.nl (Collection of all knowledge and research on organic farming)

www.louisbolk.nl (Research institute for organic farming)

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www.maxhavelaar.nl (Foundation that set up the Fairtrade quality mark in the Netherlands)

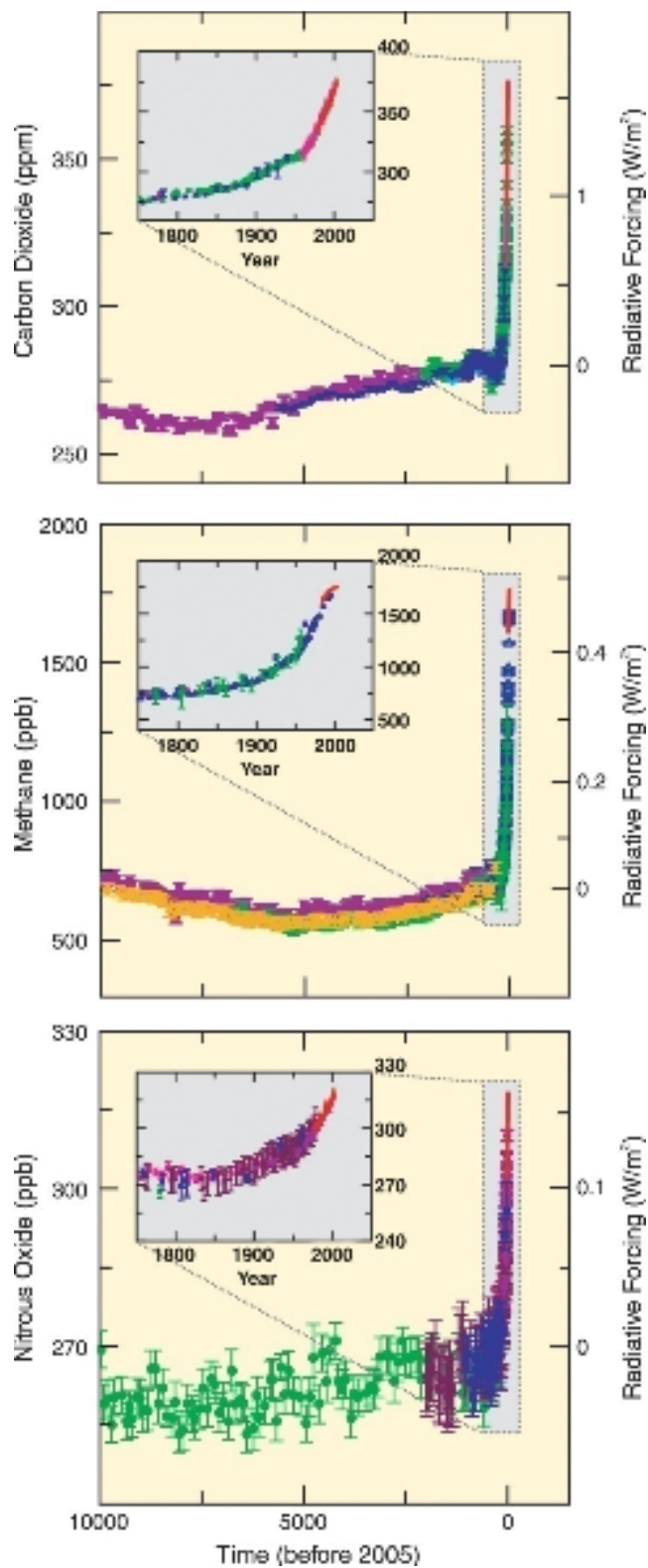
www.milieudefensie.nl (Dutch branch of Friends of the Earth)

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Appendices

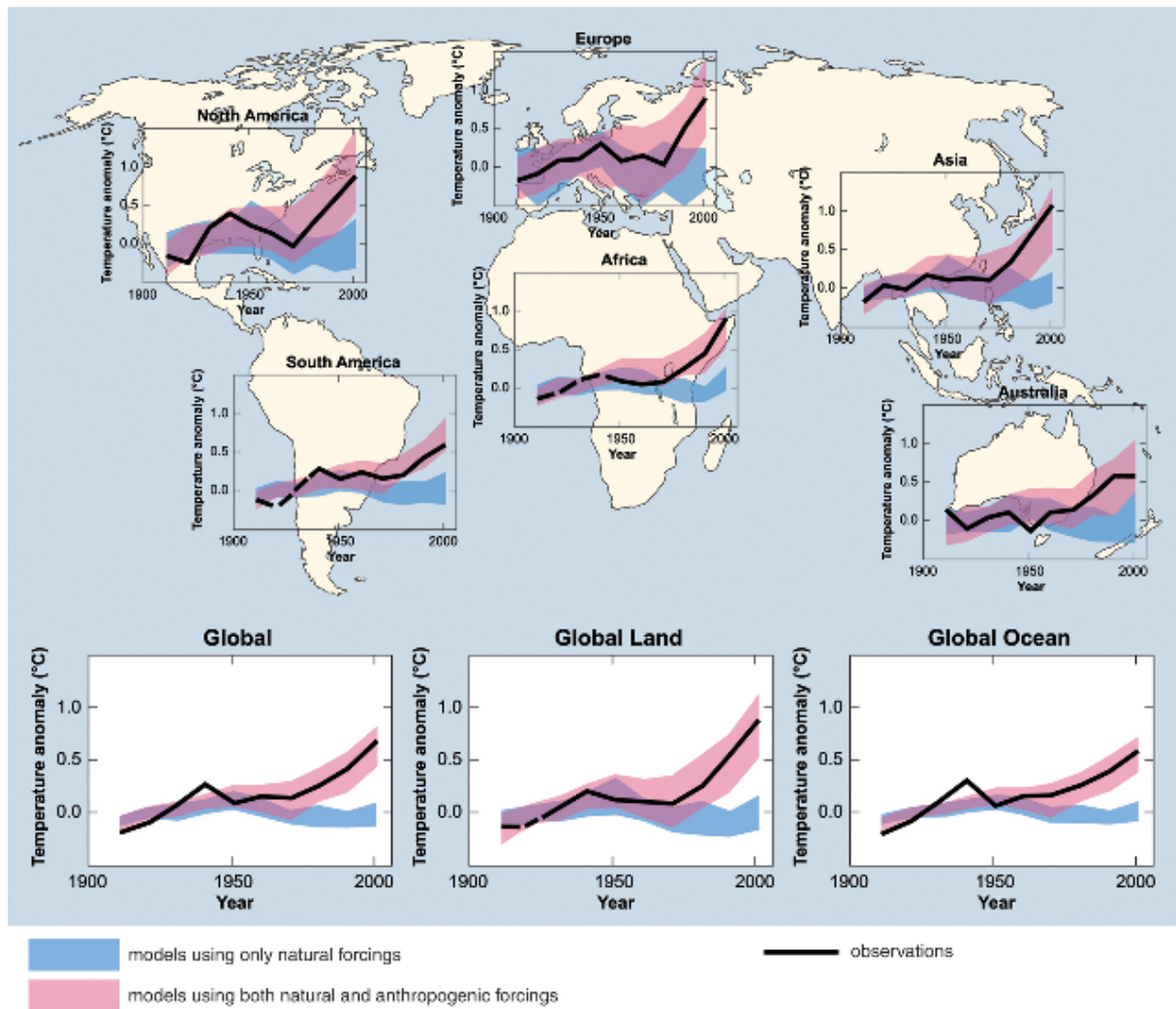
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Appendix I: Levels of greenhouse gasses



Source: Climate Change 2007 – A report of Working Group I of the IPCC – Summary for Policy Makers, *Intergovernmental Panel on Climate Change (IPCC)*

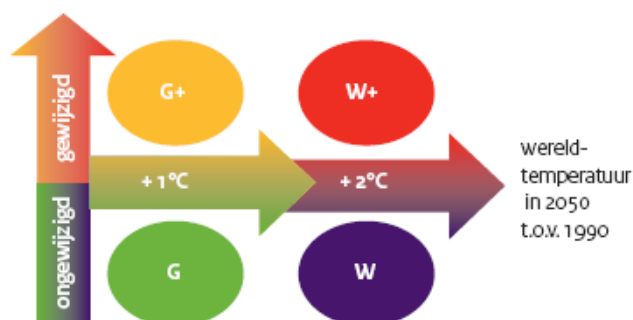
Appendix II: Global temperatures



Source: Climate Change 2007: Synthesis Report, *Intergovernmental panel on climate change (IPCC)*

Appendix III: Climate scenarios by KNMI

luchtstromings-
patronen



		G	G+	W	W+
	Wereldwijde temperatuurstijging	+1°C	+1°C	+2°C	+2°C
	Verandering in luchtstromingspatronen	nee	ja	nee	ja
Winter					
	gemiddelde temperatuur	+0,9°C	+1,1°C	+1,8°C	+2,3°C
	koudste winterdag per jaar	+1,0°C	+1,5°C	+2,1°C	+2,9°C
	warmste winterdag per jaar	+0,8°C	+0,9°C	+1,6°C	+1,7°C
	gemiddelde neerslaghoeveelheid	+4%	+7%	+7%	+14%
	aantal natte dagen (≥ 0,1mm)	0%	+1%	0%	+2%
	10-daagse neerslaghoeveelheid die eens in de 10 jaar wordt overschreden	+4%	+6%	+8%	+12%
	hoogste daggemiddelde windsnelheid per jaar	0%	+2%	-1%	+4%
Lente					
	gemiddelde temperatuur	+0,9°C	+1,2°C	+1,8°C	+2,6°C
	koudste lentedag per jaar	+1,0°C	+1,4°C	+2,0°C	+2,8°C
	warmste lentedag per jaar	+1,0°C	+1,5°C	+2,0°C	+2,9°C
	gemiddelde neerslaghoeveelheid	+3%	+1%	+6%	+3%
	aantal natte dagen (≥ 0,1mm)	-1%	-3%	-2%	-5%
	dagelijkse neerslaghoeveelheid die eens in de 10 jaar wordt overschreden	+0%	+5%	+18%	+11%
	10-daagse neerslaghoeveelheid die eens in de 10 jaar wordt overschreden	+6%	+3%	+12%	+7%
Zomer					
	gemiddelde temperatuur	+0,9°C	+1,4°C	+1,7°C	+2,8°C
	koudste zomerdag per jaar	+0,9°C	+1,1°C	+1,7°C	+2,3°C
	warmste zomerdag per jaar	+1,0°C	+1,9°C	+2,1°C	+3,8°C
	gemiddelde neerslaghoeveelheid	+3%	-10%	+6%	-19%
	aantal natte dagen (≥ 0,1mm)	-2%	-10%	-3%	-19%
	dagelijkse neerslaghoeveelheid die eens in de 10 jaar wordt overschreden	+13%	+5%	+27%	+10%
	referentie verdamping	+3%	+8%	+7%	+15%
Herfst					
	gemiddelde temperatuur	+0,9°C	+1,3°C	+1,8°C	+2,7°C
	koudste herfstdag per jaar	+1,0°C	+1,3°C	+2,0°C	+2,6°C
	warmste herfstdag per jaar	+1,0°C	+1,8°C	+2,0°C	+3,6°C
	gemiddelde neerslaghoeveelheid	+3%	-3%	+6%	-6%
	aantal natte dagen (≥ 0,1mm)	-1%	-5%	-1%	-11%
	dagelijkse neerslaghoeveelheid die eens in de 10 jaar wordt overschreden	+0%	+6%	+18%	+12%
	10-daagse neerslaghoeveelheid die eens in de 10 jaar wordt overschreden	+6%	+3%	+12%	+5%
Zeespiegel					
	absolute stijging	15-25 cm	15-25 cm	20-35 cm	20-35 cm

Source: Klimaatverandering in Nederland – Aanvulling op de KNMI'06 Scenario's, *Royal Dutch Meteorological Institute (KNMI)*.

Appendix IV: Survey Sustainability

Age: Gender: M/F

Education: Profession:

At which supermarket do you usually buy your food products?

Which supermarket is the most sustainable according to you?

What is your primary reason to (not) buy sustainable food (organic, ecological, Fairtrade, sustainable fishing)?

Which sustainable foods do you buy on a regular basis?

Indicate to what degree you disagree (1) or agree (5) with the following statements (as accurate as possible).

I believe that I live a sustainable life.	1	2	3	4	5
I usually eat meat for dinner.	1	2	3	4	5
I drink or eat a dairy product (milk/cheese) every day.	1	2	3	4	5
I regularly eat (once per week) codfish or tuna fish.	1	2	3	4	5
I usually eat more than I need in nutritional value.	1	2	3	4	5
I take my bike as often as I can instead of the car or public transport.	1	2	3	4	5
I separate my garbage as much as I can in metal/plastic/cardboard.	1	2	3	4	5
I always turn off the light when I leave the room.	1	2	3	4	5
A nuclear power plant is more sustainable than a coal driven power plant.	1	2	3	4	5
The Netherlands is at the forefront in the field of sustainability.	1	2	3	4	5
E-numbers in food products are approved additives and therefore safe.	1	2	3	4	5
The government supplies enough information about sustainable food.	1	2	3	4	5
The quality mark 'BIO' represents organic, which guarantees validity.	1	2	3	4	5
There are enough promotional campaigns for sustainable food.	1	2	3	4	5
Agricultural subsidies supply the EU farmer with an unfair advantage.	1	2	3	4	5
I take my time to compare food products in the supermarket.	1	2	3	4	5
I am willing to pay more for organic if it is healthier.	1	2	3	4	5
I would rather see odd shaped apples instead of genetically modified ones.	1	2	3	4	5
Fairtrade products do not necessarily have to be organic.	1	2	3	4	5
I am willing to pay more for organic if it tastes better.	1	2	3	4	5
Cultivating only the strongest crop is sustainable.	1	2	3	4	5
Sustainability is pushed upon us by the media and the government.	1	2	3	4	5
Eating meat and dairy products on a daily basis goes against sustainability.	1	2	3	4	5
I want to cultivate a certain amount of my own food.	1	2	3	4	5
Poor countries need to contribute evenly to sustainability.	1	2	3	4	5

Appendix V: Results Survey

This table shows all the results of the statements (S) on sustainable behaviour.

All respondents	S1	S2	S3	S4	S5	S6	S7	S8
Disagree completely (1)	9	16	8	32	6	14	10	2
Disagree partially (2)	20	14	10	19	18	6	12	7
Indifferent (3)	39	11	7	9	29	9	16	8
Agree partially (4)	12	21	19	13	18	24	19	30
Agree completely (5)	0	18	36	7	8	27	23	33
Group R2C								
Disagree completely (1)	5	7	4	16	4	5	6	1
Disagree partially (2)	9	6	5	12	5	1	7	3
Indifferent (3)	18	5	3	3	16	3	9	1
Agree partially (4)	8	11	8	5	10	13	9	15
Agree completely (5)	0	11	20	4	4	18	9	20
Group Online								
Disagree completely (1)	4	9	4	16	2	9	4	1
Disagree partially (2)	11	8	5	7	13	5	5	4
Indifferent (3)	21	6	4	6	13	6	7	7
Agree partially (4)	4	10	11	8	8	11	10	15
Agree completely (5)	0	7	16	3	4	9	14	13

This table shows all the results of the statements (S) on sustainability in general.

All respondents	S9	S10	S11	S13	S15	S19	S21	S22	S23	S25
Disagree completely (1)	3	24	17	12	4	4	12	20	9	6
Disagree partially (2)	5	18	21	22	15	10	22	28	20	17
Indifferent (3)	29	30	27	22	28	29	38	15	19	27
Agree partially (4)	24	7	12	21	19	25	4	10	24	21
Agree completely (5)	19	1	2	3	13	10	3	7	8	9
Group R2C										
Disagree completely (1)	2	18	12	9	2	1	9	15	6	2
Disagree partially (2)	2	9	10	12	8	4	8	12	5	13
Indifferent (3)	11	12	10	9	10	13	17	6	10	12
Agree partially (4)	14	1	5	7	11	16	3	5	13	10
Agree completely (5)	11	0	2	3	9	4	2	2	6	3
Group Online										
Disagree completely (1)	1	6	5	3	2	3	3	5	3	4
Disagree partially (2)	3	9	11	10	7	6	14	16	15	4
Indifferent (3)	18	18	17	13	18	16	21	9	9	15
Agree partially (4)	10	6	7	14	8	9	1	5	11	11
Agree completely (5)	8	1	0	0	4	6	1	5	2	6

This table shows all the results of the statements (S) on sustainable food.

All respondents	S12	S14	S16	S17	S18	S20	S24
Disagree completely (1)	28	17	13	8	3	1	29
Disagree partially (2)	24	31	16	21	8	9	17
Indifferent (3)	19	23	23	18	14	20	8
Agree partially (4)	5	5	23	28	27	31	13
Agree completely (5)	4	3	5	5	28	19	13
Group R2C							
Disagree completely (1)	15	12	8	4	1	0	10
Disagree partially (2)	12	14	7	6	2	5	9
Indifferent (3)	8	12	9	8	9	6	7
Agree partially (4)	3	0	12	19	11	13	6
Agree completely (5)	2	2	4	3	17	16	8
Group Online							
Disagree completely (1)	13	5	5	4	2	1	19
Disagree partially (2)	12	17	9	15	6	4	8
Indifferent (3)	11	11	14	10	5	14	1
Agree partially (4)	2	5	11	9	16	18	7
Agree completely (5)	2	1	1	2	11	3	5

Appendix VI: Executive Summary – Dutch

De industrialisering van onze planeet heeft ervoor gezorgd dat we van veel zekerheden hebben kunnen genieten die niet beschikbaar waren voor vorige generaties. Terwijl velen hebben geprofiteerd van deze ontwikkelingen, hebben anderen veel moeten opofferen om aan deze groei van welvaart ruimte te bieden. Met die anderen is niet altijd rekening gehouden, tot voor kort. De mensheid heeft ingezien dat het fragiele evenwicht is verschoven naar een wereld die misschien niet langer in staat is om haar bewoners te voorzien in de toekomst. Ecosystemen zijn verstoord, het klimaat verandert, de mondiale biodiversiteit is drastisch verminderd en armoede is nog steeds niet opgelost. Terwijl de wereldbevolking toeneemt, oefenen we steeds meer druk uit op de natuurlijke bronnen van onze blauwe planeet. Tenzij regeringen op mondiaal niveau nu niets doen om dit proces te veranderen, zal de mensheid en haar omgeving gedoemd zijn.

Gelukkig heeft het nieuwe millennium gezorgd voor een toename van bewustzijn bij overheden, bedrijven en mensen. Nieuwe wetten worden ingevoerd op wereldwijde schaal om de schade die we hebben veroorzaakt aan het milieu te stoppen en zelfs te keren. Nieuwe initiatieven worden dagelijks geïmplementeerd om ervoor te zorgen dat toekomstige generaties ook een kans hebben om dezelfde levensomstandigheden en bevoorrechte levensstijl voort te zetten die wij hebben gehad in de afgelopen decennia. Nieuwe duurzame energiebronnen en nieuwe technologieën worden steeds meer gebruikt om onze samenleving om te zetten in een duurzame samenleving. Een andere denkwijze wordt langzaam geïntegreerd in onze waarden. Aangezien deze nieuwe waarden evolueren, wordt het bijbehorende gedrag ook geacht te veranderen.

Er zijn vele manieren om duurzamer te worden op kleine schaal. Het openbaar vervoer in plaats van de auto, het vervangen van conventionele gloeilampen met spaarlampen en het kopen van duurzame levensmiddelen in onze lokale supermarkt zijn allemaal manieren om bij te dragen aan duurzame ontwikkeling. Deze scriptie heeft betrekking op het laatstgenoemde voorbeeld en zal zodoende de duurzame voedselconsumptie benaderen vanuit drie verschillende invalshoeken. Het beleid van de regering, de initiatieven uit het bedrijfsleven en het gedrag van de consument zijn geanalyseerd om een overzicht geven van hoe duurzame consumptie kan worden bevorderd in de toekomst.

De Nederlandse overheid wil over een paar jaar een koppositie op het gebied van duurzame voedselproductie en -consumptie. De overheid heeft een nieuw beleid voor duurzaamheid dat alle ministeries betreft, genaamd KADO. Eén aspect van dit beleid is het bevorderen van

duurzaam voedsel onder de Nederlandse bevolking. Het ministerie van Landbouw, Natuur en Voedselkwaliteit (LNV) heeft diverse beleidsnota's opgesteld over de nadere uitwerking van de doelstellingen op het gebied van duurzaam voedsel. De beleidsnota Duurzaam Voedsel richt zich op drie verschillende aspecten. Het eerste aspect betreft de productiezijde waaronder boerderijen, voedselverwerkende bedrijven, distributeurs en supermarkten vallen. Als de vraag naar duurzaam voedsel zal toenemen in de toekomst, zal het aanbod dit voldoende moeten kunnen ondersteunen. Boeren worden zodoende gestimuleerd om biologische producten te verbouwen en om hun productiemethoden duurzamer te maken. Het tweede aspect betreft de stimulering van duurzame voedselconsumptie bij de consument. Consumenten moeten bewust worden gemaakt van de gevolgen van hun eigen gedrag voordat ze daadwerkelijk kunnen worden overtuigd van de noodzaak om duurzaam voedsel te kopen. De regering heeft een campagne opgezet om consumenten te informeren over hun gedrag. Deze campagne richt zich op dierenwelzijn, voedselverspilling, klimaatverandering, eerlijke handel en de herkomst van voedsel. Afgezien van deze campagne, richt de regering zich op het verbinden van jongeren met de productie van hun eigen voedsel. Het derde aspect van de beleidsdoelstellingen betreft het plaatsen van duurzame voedselconsumptie op de internationale agenda.

Supermarkten zijn begonnen met eigen initiatieven als gevolg van een groeiende vraag naar duurzame producten. Velen van hen publiceren duurzaamheidsverslagen op hun websites om consumenten te tonen dat zij duurzame ontwikkeling serieus nemen. Milieuorganisaties zetten supermarkten aan tot een bepaalde mate van verantwoordelijkheid zodat zij consumenten voorzien van meer duurzame producten. Veel supermarkten hebben inmiddels een groeiend aantal biologische, Fairtrade en andere duurzame producten in hun schappen en sommigen hebben zelfs hun eigen duurzaam huismerk. Door het vergroten van de aandacht voor duurzame voedselproductie en het verbeteren van de zichtbaarheid van duurzame producten in hun winkels, leveren supermarkten een substantiële bijdrage aan duurzame voedselconsumptie.

De huidige positie van de biologische, Fairtrade en duurzame visserijsector in Nederland is nog vrij klein, maar een kleine jaarlijkse groei is desalniettemin zichtbaar. Veel keurmerken zorgen ervoor dat duurzame productie wordt bevorderd en dat duurzame producten herkenbaar zijn in de schappen van supermarkten. Het duurzame aankoopbeleid van de regering heeft ervoor gezorgd dat de biologische landbouwsector eveneens wordt gestimuleerd. De biologische landbouwsector wordt nog steeds gesteund door de overheid, maar over een paar jaar zal deze sector onafhankelijk en zelfvoorzienend moeten zijn. De visserijsector wordt ook ondersteund door de overheid om duurzamer te worden en te

voldoen aan de normen van keurmerken voor duurzame visserij. Omdat consumenten steeds meer rond de wereld reizen, komen ze oog in oog met de levenswijze van mensen in ontwikkelingslanden en zien daarom de noodzaak om Fairtrade producten te kopen. De Fairtrade sector ziet dan ook een jaarlijkse groei, waardoor boeren in ontwikkelingslanden een beter inkomen krijgen.

Consumenten hebben nog steeds problemen te beseffen wat de consequenties van hun gedrag zijn. Ze zijn meer geneigd te denken in termen van 'hier en nu' in plaats van 'ver weg en later'. Terwijl hun kennis over duurzaamheid langzaam toeneemt, passen ze ook langzaam hun eigen gedrag aan. Veel consumenten hebben echter nog steeds het idee dat hun voedsel wordt geproduceerd op een idyllische en traditionele manier, in plaats van de eigenlijke industriële productie. Consumenten geven ook steeds meer de voorkeur aan kant en klare maaltijden die nauwelijks bereidingstijd vereisen. De ingrediënten van deze maaltijden zijn vaak afkomstig uit de hele wereld, wat ertoe heeft geleid dat de consument is vervreemd van het productieproces.

Consumenten zullen de consumptie van eiwitrijke voedingsmiddelen moeten verminderen vanwege de grotere hoeveelheid energie die nodig is voor de productie. Voedselverspilling moet ook worden voorkomen omdat er veel energie verloren gaat. Daarnaast moet dierenwelzijn een belangrijk motief zijn om meer duurzame levensmiddelen te kopen. Een zekere mate van verantwoordelijkheid moet tijdens het aankoopproces in acht worden genomen. Veel consumenten geloven vaak dat hun eigen verandering in gedrag niet bijdraagt tot een duurzamere samenleving als andere consumenten hun gedrag niet ook veranderen. Kleine duurzame stappen in de levensstijl van de consument, zonder een aanzienlijk verlies in luxe, zijn de oplossing voor duurzame voedselconsumptie.

Het onderzoek dat werd gedaan voor deze scriptie toont aan dat de overheid de consument niet voorziet van voldoende informatie over duurzame voeding en ook niet voldoende stimuleert tot het kopen van duurzaam voedsel. Als consumenten voldoende informatie over duurzame voeding op een begrijpelijke manier ontvangen, is het mogelijk om hun mentaliteit en gedrag te veranderen.

De consument moet zeker worden verbonden met de productie van zijn voedsel, maar dit dient te gebeuren op een meer lokaal niveau. Omdat 'hier en nu' de belangrijkste mentaliteit van de consumenten is, moet hen in hun eigen omgeving getoond worden wat duurzame ontwikkeling kan betekenen voor hen en hun kinderen. Supermarkten moeten hun klanten met producten van lokale (biologische) boeren voorzien en het voordeel benadrukken van

een regionale leverancier van voedsel. Studenten van alle leeftijden op scholen moeten worden verbonden met de bedrijven binnen hun eigen regio om zo te laten zien wat regionale duurzame productie zou kunnen betekenen voor hen en hun familie. Als de voornaamste bron van informatie voor duurzaamheid zich in de supermarkt bevindt, hoeft de consument niet langer moeite te doen om zich te informeren over duurzaamheid. Reclamecampagnes over duurzame voeding zouden niet gericht moeten zijn op een bepaald niveau van schuld dat een consument zou moeten voelen, maar juist op de toegevoegde waarde van duurzaam voedsel. Het lekkerder en gezonder zijn van duurzaam voedsel worden gezien als veel belangrijkere aankoopmotieven dan de bijdrage aan een duurzamere samenleving.

Afgezien van dit promotiebeleid, zou de overheid nog een paar dingen kunnen doen om duurzame consumptie te bevorderen. Belastingen kunnen worden ingevoerd voor eiwitrijke producten, waarvan de inkomsten vervolgens weer kunnen worden gebruikt om duurzame voedselproductie te financieren. Als duurzaam voedsel goedkoper zou zijn dan conventioneel voedsel, zou er niet langer een reden zijn voor het niet kopen van duurzame voedingsmiddelen. Er is ook wetgeving nodig voor de vereenvoudiging van de keurmerken die aangeven of een product duurzaam is. De consument moet het vertrouwen krijgen in de keurmerken die ervoor zorgen dat hij een duurzame keuze maakt. Wetenschappelijk bewijs over het gezonder zijn van duurzame voeding moet ook worden gepubliceerd om sceptische consumenten te overtuigen van de voordelen van het kopen van duurzaam voedsel.

De overheid is niet de enige verantwoordelijke voor het veranderen van de mentaliteit en het gedrag van consumenten. Het is een gezamenlijke verantwoordelijkheid van de overheid, het bedrijfsleven en de consument zelf. De overheid moet in haar rol informatie aanleveren die nodig is om de mentaliteit te veranderen van de consument. Het bedrijfsleven moet haar verantwoordelijkheid nemen door het verhogen van de zichtbaarheid en de bevordering van duurzaam voedsel. Maar het is vooral de consument zelf die beslist hoe hij zijn eigen gedrag kan veranderen. Het vereist slechts kleine middelen om te komen tot een hoger doel. Het is een last en een verantwoordelijkheid die wij dragen als een gecombineerde menselijke entiteit. Zoals de voormalige duurzaamheidscampagne in Nederland het zo mooi wist te verwoorden: "Een beter milieu begint bij jezelf".

Appendix VII: Executive Summary – German

Die Industrialisierung unseres Planeten hat dafür gesorgt, dass wir heute viele Sicherheiten genießen können, die für frühere Generationen nicht verfügbar waren. Während viele Menschen von diesen Entwicklungen profitiert haben, mussten andere viel aufgeben um das Wachstum und den Wohlstand zu ermöglichen. Bis vor kurzen hat man auf diese anderen keine Rücksicht genommen. Die Menschheit hat erkannt, dass das empfindliche Gleichgewicht sich verschoben hat zu einer Welt, die in der Zukunft nicht mehr in der Lage ist den Bedürfnisse seiner Bewohner gerecht zu werden. Die Ökosysteme sind gestört, die weltweite biologische Vielfalt ist drastisch reduziert und die Armut ist noch immer nicht gelöst. Während die Weltbevölkerung zunimmt, üben wir zunehmenden Druck auf die natürlichen Quellen unseres blauen Planeten aus. Solange die Regierungen weltweit nicht handeln, um diesen Prozess zu ändern, ist die Menschheit und ihre Umgebung zum Scheitern verurteilt.

Glücklicherweise hat das neue Jahrtausend für ein zunehmendes Bewusstsein der Regierungen, Unternehmen und Menschen gesorgt. Auf globaler Ebene werden neue Gesetze eingeführt, um den Schaden der für die Umwelt entstanden ist zu stoppen und sogar um zu kehren. Neue Initiativen werden täglich umgesetzt um dafür zu sorgen, dass zukünftige Generationen eine Chance haben die gleichen Lebensbedingungen und den gleichen privilegierten Lebensstil zu genießen den wir in den letzten Jahrzehnten hatten. Erneuerbare Energiequellen und neue Technologien werden zunehmend gebraucht um unsere Gesellschaft umzusetzen in eine nachhaltige Gesellschaft. Langsam integriert sich in unsere Werte eine neue Art des Denkens. Angesichts dieser neuen Entwicklung unserer Werte ist es angebracht auch das Verhalten an zu passen.

Es gibt viele Möglichkeiten um nachhaltig zu leben. Die öffentlichen Verkehrsmittel benutzen anstelle des Autos, Glühbirnen durch Energiesparlampen zu ersetzen und nachhaltige Speisen in unserem Supermarkt zu kaufen, sind alles Möglichkeiten die zu einer nachhaltigen Entwicklung beitragen. Diese Diplomarbeit konzentriert sich auf das letztgenannte Beispiel, nachhaltige Lebensmittel, die aus drei verschiedenen Blickwinkeln betrachtet werden. Die Politik der Regierung, die Initiativen aus der Industrie und Konsumverhalten werden analysiert, um einen Überblick über nachhaltigen Konsum zu bekommen und zu untersuchen wie dieser in der Zukunft gefördert werden kann.

Die niederländische Regierung will in ein paar Jahren eine Führungsposition im Bereich der nachhaltigen Nahrungsmittelproduktion und -verbrauch. Die Regierung hat eine neue Politik

der Nachhaltigkeit, woran alle Ministerien beteiligt sind, diese heißt KADO. Ein Aspekt dieser Politik ist es, nachhaltige Lebensmittel unter der niederländischen Bevölkerung zu fördern. Das Ministerium für Landwirtschaft, Natur und Lebensmittelqualität (LNV) hat mehrere Pläne zur detaillierten Ausarbeitung der Ziele im Bereich der nachhaltigen Nahrungsmittelproduktion aufgestellt. Diese Pläne für nachhaltige Lebensmittel konzentriert sich auf drei verschiedene Aspekte. Der erste Aspekt ist die Seite der Produktion, einschließlich landwirtschaftlicher Betriebe, Lebensmittel-Verarbeiter, Händler und Supermärkte. Wenn die Nachfrage nach nachhaltigen Nahrungsmittelproduktion in der Zukunft zunimmt, muss das Angebot die Nachfrage unterstützen können. Die Landwirte sind daher aufgefordert, Bio-Produkte und ihre Herstellung auf nachhaltige Weise zu gestalten. Der zweite Aspekt betrifft die Förderung der nachhaltigen Lebensmittel bei den Verbrauchern. Die Verbraucher müssen erst über die Folgen ihres eigenen Verhaltens informiert werden, bevor sie tatsächlich von der Notwendigkeit nachhaltige Lebensmittel zu kaufen überzeugt werden können. Die Regierung hat eine Kampagne, um die Verbraucher über ihr Verhalten zu informieren, ins Leben gerufen. Die Kampagne konzentriert sich auf die Tierschutz, Lebensmittel-Abfälle, Klimawandel, Fairtrade und die Herkunft von Lebensmitteln. Abgesehen von dieser Kampagne konzentriert sich die Regierung auf das Bewusstsein der Jugend über die Produktion von Nahrungsmitteln. Der dritte Aspekt betrifft die Aufnahme der nachhaltigen Lebens-Aufträge in der internationalen Agenda.

Supermärkte haben auf Grund der wachsenden Nachfrage nach nachhaltigen Produkten ihre eigenen Initiativen gestartet. Viele von ihnen veröffentlichen Berichte über nachhaltige Lebensmittel auf ihren Webseiten um den Verbraucher zu zeigen das sie die Entwicklung der nachhaltigen Lebensmittel ernst nehmen. Umwelt-Organisationen motivieren Supermärkte zu mehr Verantwortung damit die Verbraucher mehr nachhaltige Produkte zur Auswahl haben. Viele Supermärkte haben jetzt eine wachsende Zahl von Bio-, Fairtrade und nachhaltigen Produkten in den Regalen und manche haben sogar ihre eigenen nachhaltigen Hausmarke. Durch mehr Aufmerksamkeit auf die Förderung einer nachhaltigen Nahrungsmittelproduktion und die Verbesserung der Sichtbarkeit von nachhaltigen Produkten in ihren Läden, leisten Supermärkte, einen wesentlichen Beitrag zum Gebrauch von nachhaltigen Lebensmitteln.

Die aktuelle Position der organischen, Fairtrade und nachhaltigen Fischerei in den Niederlanden ist noch relativ klein, aber dennoch ist ein kleines jährliches Wachstum sichtbar. Viele Qualitätszeichen stellen sicher, dass die nachhaltige Produktion der Produkte die in der Regalen der Supermärkte stehen zu erkennen ist und gefördert wird. Die Politik der Regierung hat dafür gesorgt, dass jetzt auch der ökologische Landbau gefördert wird.

Die ökologische Landwirtschaft wird nach wie vor von der Regierung unterstützt, aber in ein paar Jahren sollte dieser Sektor unabhängig und autark sein. Die Fischerei wird ebenfalls von der Regierung unterstützt, um nachhaltig zu sein und entsprechend der Normen der nachhaltigen Fischerei zu arbeiten. Da die Verbraucher zunehmend reisen, werden sie öfter mit der Lebensweise der Menschen in Entwicklungsländern konfrontiert und wird die Notwendigkeit Fairtradeprodukte zu kaufen zunehmend sichtbar. Der Fairtrade-Sektor sieht auch eine jährliche Wachstumsrate was für ein besseres Einkommen bei den Landwirten in den Entwicklungsländern sorgt.

Die Verbraucher haben immernoch Probleme die Folgen ihres Verhaltens zu verstehen. Sie sind eher geneigt, im "Hier und Jetzt" anstelle von "Weit weg und Morgen" zu denken. Während ihr Wissen über Nachhaltigkeit zunimmt, passen sie langsam ihr eigenes Verhalten an. Viele Verbraucher haben immer noch das Gefühl, dass ihre Lebensmittel in einer idyllischen und traditionellen Weise hergestellt werden und nicht, wie in der Wirklichkeit der Fall ist, in der eigentlichen industriellen Produktion. Die Verbraucher bevorzugen zunehmend Fertiggerichte die wenig Vorbereitungszeit erfordern. Die Zutaten dieser Speisen kommen oft aus der ganzen Welt was dazu geführt hat dass die Produktion dieser Speisen für den Verbraucher nicht mehr nachvollziehbar ist.

Die Verbraucher werden den Verbrauch von eiweißreichen Lebensmitteln verringern müssen wegen der großen Menge an Energie die für die Produktion benötigt wird. Auch Lebensmittelverschwendung sollte vermieden werden, da auch dabei viel Energie vergeudet wird. Außerdem sollte Tierschutz ein wichtiges Motiv sein um nachhaltige Lebensmittel zu kaufen. Ein gewisses Maß an Verantwortung ist während des Einkaufs wichtig. Viele Verbraucher glauben, dass ihr eigenes Verhalten zu ändern nicht zu einer nachhaltigen Gesellschaft beiträgt wenn die anderen Verbraucher nicht auch ihr Verhalten ändern. Kleine Schritte in Richtung nachhaltiger Lebensmittelverbrauch, ohne einen signifikanten Verlust an Luxus, ist von entscheidender Bedeutung.

Die Untersuchung für diese These zeigt, dass die Regierung den Verbraucher nicht genügend über nachhaltige Lebensmittel informiert und nicht genügend Werbekampagnen führt. Nur wenn die Verbraucher ausreichend Informationen über nachhaltige Nahrungsmittelproduktion in einer verständlichen Art und Weise erhalten, ist es möglich dass sie ihr Verhalten und ihr Verhalten ändern.

Die Verbraucher sollten auf jeden Fall mit der Produktion ihrer Lebensmittel verbunden werden, dies sollte aber auf eher lokaler Ebene getan werden. Durch die "hier und jetzt"

Mentalität der Verbraucher, müssen sie in ihrer eigenen Umgebung angezeigt bekommen was eine nachhaltige Entwicklung für sie und ihre Kinder bedeuten kann. Supermärkte müssen ihre Kunden mit Produkten von lokalen (Bio-) Bauern versorgen und den Vorteil von regionalen Anbietern betonen. Schüler aller Altersgruppen sollten mit den Unternehmen in ihrer Region verbunden werden, um zu zeigen was nachhaltige regionale Produktion für sie und ihre Familien bedeuten kann. Wenn die wichtigste Informationsquelle über nachhaltige Lebensmittel im Supermarkt ist, muss der Verbraucher sich nicht länger anstrengen um diese Informationen zu bekommen. Werbekampagnen über nachhaltige Lebensmittel sollten nicht das Schuldgefühl des Verbrauchers ansprechen sondern stattdessen den Mehrwert der nachhaltigen Nahrungsmittelproduktion verdeutlichen. Das nachhaltige Lebensmittel leckerer und gesünder sind scheint ein wichtiges Motiv für die Gesellschaft zu sein um nachhaltiger zu leben.

Abgesehen von dieser Förderung sollte die Regierung noch ein paar Dinge tun können, um nachhaltigen Konsum zu fördern. Steuern für Protein-Produkte können erhöht werden, deren Umsatz könnte dann wiederum verwendet werden um nachhaltige Nahrungsmittelproduktion zu finanzieren. Wenn nachhaltige Lebensmittel billiger wären als konventionelle Lebensmittel, gäbe es keinen Grund mehr keine nachhaltigen Lebensmitteln zu kaufen. Es sind Rechtsvorschriften erforderlich, um die Etiketten, die angeben ob ein Produkt nachhaltig ist, zu vereinfachen. Der Verbraucher sollten Vertrauen haben in diese Etiketten. Wissenschaftliche Erkenntnisse über nachhaltige Lebensmittel und wie gesund diese sind sollten veröffentlicht werden, um skeptische Verbraucher über die Vorteile von nachhaltigen Lebensmitteln zu informieren und zum Kauf anzuregen.

Die Regierung ist nicht allein verantwortlich für die Änderung der Einstellungen und Verhaltensweisen der Verbraucher. Es ist eine gemeinsame Verantwortung von Regierung, Industrie und dem Endverbraucher selbst. Die Regierung hat die Rolle um Informationen bereit zu stellen und dadurch die Einstellung der Verbraucher ändern zu können. Die Industrie muss ihren Teil dazu beitragen durch die Erhöhung der Sichtbarkeit und der Förderung der nachhaltigen Nahrungsmittelproduktion. Aber es ist in erster Linie der Verbraucher der entscheidet wie er sein eigenes Verhalten ändern kann und will. Es erfordert nur geringe Mittel um eine größere Wirkung zu erzielen. Es ist eine Last und Verantwortung, die wir als Menschen gemeinsam zu tragen haben. Wie die ehemalige Niederländische Kampagne zur Nachhaltigkeit so schön in Worte fasste: "Eine bessere Umwelt beginnt zu Hause".

Appendix VIII: Logbook

Name: Frits van de Port

Title of paper: Promoting sustainable food consumption in the Netherlands

Supervisor: Lies de Regt

Date	Content of meeting	Initials supervisor
25-11	First assessment thesis paper - Research questions	
03-12	Second assessment thesis paper - Desk Research - Setup Field Research	
17-12	Third assessment thesis paper - Results Field Research - Progress report	
07-01	Final assessment thesis paper - Contents final draft report - Conclusions and recommendations	