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Global Food Waste and the Netherlands: Steps Towards Accomplishing SDG's target 12.3

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Abstract

The issue of global food waste is tackled by the United Nations (UN) through target 12.3 of the Sustainable Development Goals: 'Responsible Consumption and Production'. This article analyzes the Netherlands' current situation regarding target 12.3, considering the problematic of food waste in addition to its role as one of the main causes of environmental pollution and a big contributor to the global carbon footprint. It includes a historical analysis of the current situation, the main actors involved, an overview of adopted measures along with the level of success and/or failure of these measures. The analysis contains some expectations for the coming years and an overview of where the Netherlands has succeeded and in which areas there is room for improvement. It concludes with a general evaluation of the country's situation in regards to the issue, as well as some suggestions as possible further steps towards target 12.3.

Keywords: Sustainable Development Goals, food waste, Netherlands, consumption.

Resum: *Malbaratament alimentari i els Països Baixos: passos per assolir l'objectiu 12.3 dels ODS*

Les Nacions Unides aborden la qüestió del malbaratament alimentari mundial a través de l'objectiu 12.3 dels Objectius de Desenvolupament Sostenible: "Consum responsable i producció". Aquest article analitza la situació actual dels Països Baixos respecte a l'objectiu 12.3, tenint en compte que és una de les causes principals de la contaminació ambiental, així com un gran contribuïdor a la petjada global de carboni. Inclou una anàlisi històrica de la situació actual, dels principals actors involucrats, un resum de les principals mesures adoptades, així com el nivell d'èxit i/o fracàs d'aquestes mesures. L'anàlisi conté expectatives per al futur i una revisió d'on els esforços han estat exitosos i en quines àrees hi ha marge de millora. Conclou amb una avaluació general de la situació de país pel que fa a la qüestió del malbaratament alimentari, així com alguns suggeriments que es podrien implementar per a avançar cap a l'objectiu 12.3.

Paraules clau: Objectius de Desenvolupament Sostenible, malbaratament alimentari, Països Baixos, consum.

Resumen: ***Desperdicio Alimenticio Global y los Países Bajos: pasos hacia el logro del objetivo 12.3 de los ODS***

El tema del desperdicio alimenticio global es abordado por las Naciones Unidas a través del objetivo 12.3 de los Objetivos de Desarrollo Sostenible: "Consumo y producción responsables". Este artículo analiza la situación actual de los Países Bajos en relación al objetivo 12.3, que considera al desperdicio alimentario como una de las principales causas de la contaminación ambiental, así como un gran contribuyente a la huella de carbono global. Incluye un análisis histórico de la situación actual, los principales actores involucrados, una perspectiva general de las medidas adoptadas así como el nivel de éxito y/o fracaso de estas medidas. El análisis contiene expectativas para los próximos años y una revisión de dónde los esfuerzos han sido exitosos y en qué áreas hay margen de mejora. Concluye con una evaluación general de la situación del país con respecto a la cuestión, así como algunas sugerencias para avanzar hacia el objetivo 12.3.

Palabras clave: Objetivos de Desarrollo Sostenible, desperdicio alimenticio, Países Bajos, consumo.

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Introduction

The United Nations (UN) states Sustainable Development Goal (SDG) number 12 as 'Responsible Consumption and Production'. Within this SDG, one of the most pressing topics is the issue of global food waste, addressed in target 12.3. But why is this such an urgent issue?

As stated by the Food and Agriculture Organization of the UN (FAO) (2011), "roughly one third of the food produced in the world for human consumption every year –approximately 1.3 billion tonnes– gets lost or wasted". Moreover, it is one of the main causes of environmental pollution and a big contributor to the global carbon footprint. In fact, "consumers in rich countries waste almost as much food as the entire net food production of sub-Saharan Africa", and in Europe it "causes 6 % of all greenhouse gases (GHG) emitted through human activity" (FAO, 2019). If food wastage was a country, it would be the third largest emitter of GHG emissions –only behind China and the USA (WRI, 2012). Therefore, it is a pressing problem of human geography, considering that food is a transforming agent of the relationships between people, the environment and their behaviors.

The fact that rich countries are the main contributors to the issue also means that these countries should be addressing this even more. In the Netherlands, according to the Eurostat reports of 2017, its total waste generation summed up to 8,855,000 tonnes a year. Moreover, 13% of edible food is wasted and about 105-152 kg are thrown away per capita annually (Soethoudt, Vollebregt

& Van der Burgh, 2017, p. 3). Even though the numbers have decreased a little since 2010,[1] it has not been enough and remains a concern.

Even though the Netherlands' efforts towards the reduction of food waste have been far from perfect, many initiatives have taken place in the country, which could serve as a precedent for others. It is crucial to keep in mind that food waste cannot be understood or tackled in isolation, but instead it has to be done in relation to its broader causes and consequences. The UN (n. d.) explains that "sustainable and responsible consumption and production is about promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all". All countries should remember that without collective action, the goal will again not be reached, keeping in mind how the UN's previous goal of reducing food waste, the absolute reduction goal of 20 percent between 2009–2015, was not achieved (Soethoud *et al*., 2017, p.4).

This article will focus on SDG 12.3, which aims at halving per capita the global food waste by 2030, at retail and consumer levels, taking into account the UN's framework on the SDGs. It aims at analyzing the contribution of the Netherlands in the fight against global food waste, by concluding in which areas the Netherlands has succeeded and where there is room for improvement, offering a general evaluation of the country's situation, its future plans towards the implementation of the target, as well as some suggestions that could be useful towards achieving the target.

1. Global and regional situation of SDG 12

1.1. Global Situation

SDG 12 is very much about "resource and energy efficiency". In contrast, material consumption of natural resources is rising. One of the hardest tasks to solve this is to change the perceived notion that economic growth can only be attained through a continuous and vast exploitation of resources. This can be done by improving the adequacy of the used resources and shifting towards alternative, responsible and sustainable consumption and production patterns. Part of the task requires policies in all sectors of the supply chain, as well as in businesses, that create incentives to change this notion. At the consumer level, it is crucial to give the consumer tools that encourage sustainable consumption habits and practices, since in the Netherlands, consumers are the main contributor to the total amount of food waste produced (Van Dooren & Mensink, 2018).

1. From 49 kg of food waste per household each year to 41 kg (*Milieu Centraal,* 2016).

Nevertheless, most of the global environmental damage is done on a higher level, in the production phase. Which is why it needs to be asserted that a raise in net welfare gains from economic activities can be attained by reducing resource use, degradation and pollution along the whole life cycle, while increasing quality of life (UN Statistics Division, 2019). According to the UN (2018), "by 2018, a total of 108 countries had national policies and initiatives relevant to sustainable consumption and production (SCP), and according to a recent report from KPMG,[2] 93 per cent of the world's 250 largest companies (in terms of revenue) are now reporting on sustainability, as are three quarters of the top 100 companies in 49 countries" (p. 10). Of course, the fact that these policies exist does not necessarily imply that they are being followed.

The UN states that developed countries should be "taking the lead" in this 10-year framework of programs on sustainable consumption, "taking into account the development and capabilities of developing countries". Even though this statement could be debated, it is a reality that developed countries have more resources to make these goals happen, but more importantly, their material footprint is much higher –even though it has grown in developing countries (United Nations Statistics Division, 2019).

Overall, is relevant to distinguish globally between high- and low-income countries, since the reasons of food waste differ significantly (Gustavsson, Cederberg & Sonesson, 2011). To briefly outline this, in low-income countries, more than 40% of the food losses occur at post-harvest and processing levels (FAO, 2011). At the consumer and retail level, the problem is usually related to the limited resources these countries possess in order to properly manage and store the food. It is associated to "managerial and technical limitations" such as difficult access to proper "harvesting techniques, storage, transportation, processing, cooling facilities, infrastructure, packaging and marketing systems" (FAO, 2015). Another relevant aspect in these countries are social and cultural conditions, and the inability of women to access crucial parts of the food chain –in terms of jobs, resources and/or services– which also lead to food loss (FAO, 2015). Therefore, most causes of food waste lay in the early stages of the supply chain.

In contrast, in medium- and high-income countries the problem is mostly in the late stages of the supply chain and the consumer stage. While enjoying a vast access to the most advanced agricultural techniques and resources, food waste continues to be a pressing concern, but for different reasons: it is more about consumers' behavior as well as the "policies and regulations put in place to address other sectorial priorities" (FAO, 2015). Quality standards, food safety, surplus quantities of crops that are wasted, as well as inadequate behavior and planning at the consumer level are all causes of preventable food waste.

2. Klynveld Peat Marwick Goerdeler, one of the four largest professional services networks in the world.

Some of the most common practices and behaviors that are a major cause of food waste at the retail level include poor environmental conditions during display, poor temperature management, and most of all, a lack of organization with a limited focus on waste. In hospitality, most of the food that is thrown away is done so for quality and hygiene purposes. At the consumer level, it is mostly about the 'best-before' or 'use-by' dates, due to which a vast amount of food is thrown away which may still be good to eat. Also, a lot of edible parts of food are discarded while cooking, serving and preparing the food.

1.2. Regional Situation

It is noticeable how Europe is the second largest total contributor to food waste in the world, just behind North America and Oceania, with about 280kg of food losses per capita every year (FAO, 2011). It is the second largest summing up all per capita food losses, and also the second largest summing up food losses at only the consumer level. To have a general idea, only in the EU, the estimate of food waste in 2012 was of 88 million tonnes, with associated costs estimated at 143 billion euros (Stenmarck, Jensen, Quested & Moates, 2016).

The European Commission (EC) has taken some actions up until today to tackle food waste, which are part of its Circular Economy Action Plan, a "broader legal framework aimed at fostering sustainable growth" (Lei Win, 2018). A circular economy entails an optimal use of resources; no waste or emission and a sustainable resource use (European Environment Agency, 2016).

First of all, the EC is elaborating a common EU methodology to measure food waste consistently in co-operation with EU countries and stakeholders (EC, 2019) in order to support the SGD 12.3 target. This act also requires EU countries to prepare food waste prevention programs, encourage food donation and other redistribution for human consumption and provide incentives for the application of the waste hierarchy (EC, 2019).

Secondly, since 2016 the EC is operating a multi-stakeholder platform (EU Platform on Food Losses and Food Waste) involving both EU countries and actors (EU institutions, experts from EU countries and relevant stakeholders) in the food chain in order to help define measures needed to achieve the food waste SDG, facilitate inter-sector co-operation, and share best practice and results achieved (EC, 2019).

Thirdly, it is taking measures to clarify EU legislation related to waste, food and feed and facilitate food donation and use of food no longer intended for human consumption in animal feed, without compromising food and feed safety.

Lastly, it is examining ways to improve the use of date marking by actors in the food chain and its understanding by consumers, in particular 'best before' labeling (EC, 2019), which is a major cause of food waste at the consumer level. In fact, a study carried out by the EU in 2018 estimates that up to 10% of the food waste generated annually in the EU is linked to date marking (EC, 2019).

The first time that a European legislation was passed on food waste (with biding measures) was the EU Waste Legislation of May 2018, as a part of the Circular Economy Action Plan, and in line with the UN's goal of cutting food waste in half by 2030. But the many legal gaps that Europe continues to have will need to be to be urgently addressed if this goal has to be reached.

2. Position of the Netherlands vis-à-vis SDG 12

In 2016, Statistics Netherlands (CBS) published an annual report for the government with an extensive research on most the areas where the Netherlands are working on the SDGs, basing its analysis on the indicators set by the UN to measure SDGs. In 2018, by commission of the Ministry of Foreign Affairs, an updated edition was published, with an extensive consultation involving a larger number of experts and actors and a more extensive analysis. As has been found in these reports, and comparing the Netherlands to other European countries, we can conclude that the Netherlands ranks highly in some areas (such as GDP, confidence in institutions, a good access to public transport…), and lower in some others (low proportion of renewable energy, low proportion of women in managerial positions…), but the development of responsible consumption and production has seen an improvement (CBS, 2018).

2.1. Historical analysis / precedents

In 1992, during the UN Conference on Environment and Development held in Rio de Janeiro, it was stated that "the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries, which is a matter of grave concern, aggravating poverty and imbalances" (as cited in Van Santen, 2013), finally acknowledging that SCP was an overarching topic to link environmental and development issues.

In 2000, the Millennium Development Goals (MDGs) were established –with objective 7 being to ensure environmental sustainability. But it was not until 2002, that member states were called to promote SCP. We find that the Netherlands was an active contributor to the MDGs, especially through its development policy, but not all of the objectives were met.

In 2003, the Marrakech Process on SCP was launched by the UN Department of Economic and Social Affairs (UNDESA) Division for Sustainable Development and the UN Environment Programme (UNEP), and the 10-Year Framework of Programmes for SCP (10YFP) was elaborated. The Netherlands participated in the Process through the International Task Force on Sustainable Products, hosted by the United Kingdom and four international agencies (International Energy Agency, UN-DESA, UNDP, and UNEP). The objective

was to "build international collaboration to raise the efficiency of energy-using products. The aims were to identify the priorities for action, and then stimulate and support the development of international networks and cooperative projects to address these priorities" (UNEP, 2011). The project "helped to establish a significant formal agreement for international action to raise the efficiency of energy-using products" (UNEP, 2011).

Moreover, it was a partner in a SCP project called 'Sustainable Consumption Opportunities for Europe' (SCOE), which was aimed at the pan-European region to "raise awareness of sustainable consumption and support multi-stakeholder dialogue and partnerships in Europe, […] exploring progress on SCP in the region, supporting national and sub-regional SCP policy development, and carry[ing] out demonstration projects."

In 2012, during the UN Conference on Sustainable Development (Rio+20), the 10YFP was adopted as a formal agreement by all member states of the UN, and it remains an overarching principle of our current SDGs.

That same year, food waste in the Netherlands was between the 1,77 and 2,55 million tonnes (Soethout *et al*., 2017). Considering that the total population of the Netherlands' in 2015 was of 16.900.726 inhabitants (CBS, 2018), it resulted in almost 130 kg of food being wasted per person. This had changed little in relation to 2009,[3] when the Minister of Agriculture, Nature and Food Quality at the time set a goal of reducing food waste by 20% before 2015; so unfortunately, the objective was not met. It is relevant to note, however, that between these years the population in the country rose considerably, with 414.939 new inhabitants (WUR, 2015), which also was a factor in the rise of food consumption and waste. Nevertheless, there was a 13% reduction in the total amount of household waste between 2009 and 2015 (Soethoud *et al*., 2017), and the project set the basis for a future better implementation of targets. One of the aspects that could serve for future reference is the monitoring methodology used to keep up with the developments in the reduction in food waste.

2.2. Current Situation

According to the 2017 report on the SDGs by the Kingdom of the Netherlands, the UNEP's 10YFP on SCP has "not yet been integrated into national policy", but the implementation of the SDG resolution started in January of 2016. Even so, "programmes to prevent food waste, a National Waste Management Plan and the National Raw Materials Agreement are all part of a Government-wide Programme for a Circular Economy" (p. 29). The Netherlands has not created any new institutional structures to implement the goals, but it rather wishes to focus on the structures that it already has to do so. Nonetheless, some additions

3. Taking into account the Food Waste Monitor Report from 2009-2015 by Soethoud *et al.* (2017).

have been made in the form of facilities, both at the local and central level, such as platforms, campaigns, websites as well as coordination points (CBS, 2018).

According to Lucas, Ludwig, Kok & Kruitwagen (2016), in comparison to the other SDG targets covered by existing Dutch policy targets, goal 12 is the second most addressed issue, just behind goal 15,[4] meaning that existing policies are actively involved with the attainment of SCP.

As stated before, food-related waste is still a huge concern for the Netherlands, and up to 13% of edible food is discarded annually. This number still needs to be reduced significantly in order to reach the goal set by the UN. Moreover, the impact on climate change in the Netherlands from food that ends up not being consumed makes up about 6% of the total greenhouse gas emission from human activity (Taskforce Circular Economy in Food, 2018).

I. Adopted measures

In 2009 a National Waste Plan (*Landelijk Afvalbeheerplan,* also known as LAP) was put in motion by the Ministry of Infrastructure and Environment, with an outline of actions to put forward until 2021. The aim of this plan was to reduce the environmental impact of the huge amounts of waste that are produced annually, as well as encourage actions focused on SCP, as well as a better system of recycling.

Six pilot studies were started, in order to gain knowledge from the different projects and find out ways to diminish the environmental impact related to waste. Businesses from six material and product industries –one of them food– researched how they could close the material cycle. In relation to the food industry, four projects were set forth. First, the *Voedsel Stichting Good Food Alliance,* aimed at promoting transparency in the food chain as well as ensuring sustainable foods on the menu in the food service industry. Second, a project measuring the quality of meat in the food chain, by developing a method to choose and measure the quality of meat in order to waste less meat. Thirdly, an adjustment of food leftovers, with the goal of encouraging high-quality processing of food waste through more information about useful application options. Last of all, a new concept to offer fresh food in catering, to diminish the expected food waste through innovation.

The pilot projects brought some interesting findings about how to take on the chain approach in waste policy. First of all, actively involving more links in the chain produces results that would have not been achieved through a sectoral approach; second of all, the success of the pilots is largely a result of the motivation of the parties involved and the active role of leaders within the groups; third of all, the facilitating role of the government, as well as the recognition and the positive publicity that goes with it, is important and speeds up the start-up of chain projects; fourth of all, the development of mutual trust is

4. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

often (time) intensive; and lastly, the parties often look at the government for financial support (Ministry of Infrastructure and the Environment: Sustainability Department, 2014). These results need not only be taken into account in order to approach the waste policies better, but also in other sectors.

The Netherlands Environmental Assessment Agency claims that SDG 12.3. is "fully covered" by the Dutch law, even though the only specific national policy agreement that is included is the Policy Agenda for Sustainable Food Systems (2009). When examining the letter, we find that its main focus is not the food waste issue, but rather tackles only a very specific objective related to sustainable food. It addresses the challenge of establishing a sustainable system of production and consumption worldwide with an emphasis on the issue of protein, recognizing that there is a shift in consumption patterns towards meat, dairy and fish which is not sustainable in the long run. Even though it is relevant, it fails to offer any suggestion whatsoever on how the specific issue of food waste will be addressed.

Other actors of Dutch society are trying to cover this gap: in 2017, the Taskforce Circular Economy in Food was started. The organization is made up of a variety of actors in different parts of the food chain, but businesses have the leading role. Its partners share the intention of lowering the amount of food waste produced, both in the food chain as well as at the consumer level. In 2018, the Taskforce identified shorter-term goals for 2020 and 2025, in order to make SDG 12.3 more attainable. In order to reach their objectives, the Taskforce follows the 'Moerman Food Use Hierarchy', a methodological approach to tackle food waste. It is divided into eight main actions, going from most desirable (1) to least desirable (8), illustrated in a reversed pyramid, all of which are part of one of four main areas:

Prevention

1. Preventing food waste
2. Food for human consumption

Reduction

3. Use in animal feed
4. Raw materials for industry

Recycling

5. Processing to make fertilizer for co-fermentation
6. Processing to make fertilizer through composting

Waste

7. Burning as waste
8. Dumping

II. Main actors involved

On a national level, the Dutch government has implemented some measures and steps towards target 12.3, but there is a clear lack of policies. One of these is the *No Waste Network,* a proposal of the Ministry of Agriculture, Nature and Food Quality, also involving the Dutch Alliance for Sustainable Food, Wageningen University and Reasearch (WUR) as well as some other stakeholders. It is aimed at entrepreneurs and institutions in the food chain, working to optimize the economic value of unpreventable surplus food and the reduction of food waste. Many businesses also committed to a yearly report on their food waste, and the steps they would take showing how they would reduce it.

The Dutch Alliance for Sustainable Food is a joint venture of the Dutch Agriculture and Horticulture Organization (LTO Nederland), the Federation of Dutch Food Industry (FNLI), the Central Bureau of Food Trade (CBL), the Association of Dutch Catering Organizations (Veneca), Koninklijke Horeca[5] Nederland (KHN) and the Dutch Association of Feeding Industry (Nevedi) to make the food chain more sustainable (Alliantie Verduurzaming Voedsel, 2019).

WUR is the leading university in the sector. One the one hand, by being a main partner in the Dutch Alliance for Sustainable Food, and on the other hand, by leading many projects nationally and internationally tackling responsible consumption and production. They also collaborate with Champions 12.3, a global alliance of diverse executives from different sectors of society specifically dealing this target. At the national level, it launched *Samen Tegen Voedselverspilling* (United Against Food Waste), a platform that brings together Dutch companies, scientists, organizations, government and consumers to reduce food waste by half by 2030. According to Luttikhold (personal communication, April 19, 2019) *Samen Tegen Voedselverspilling* is "really great because [...] the food waste sector is together, so it's really easy to speak with all stakeholders".

The Taskforce, originator of the initiative, consists of a large number of companies, research institutes, civil society organizations and government bodies, and it aims al halving food waste 2030. Also, the Dutch Ministry of Agriculture, Nature and Food Quality will provide a total of seven million euros over the coming four years to support this objective via investments in innovation, research, monitoring and education (WUR, 2019)

At the provincial level some measures also have been taken. Brabant, for example, is known as the "agrifood" province of the Netherlands. This has allowed it to develop as a place where knowledge on the topic of food waste is shared. In 2018, for example, the 'Food Waste Event' took place in THREE-SIX-TY — an innovation center for circular economy, supported by the Brabant Development Agency (BOM).

The VNG (*Vereiniging van Nederlanse Gemeenten,* or Association of Dutch Municipalities) was established in 1912, and functions as a legal person under

5. *Horeca* is a term used in Dutch to the industry encompassing all hotels, restaurants and cafés. It could be translated roughly into the food service industry or the catering industry.

private law with full legal capacity under Dutch law, and its broad legal capacities have allowed the municipalities to "fully engage in capacity development and peer-to-peer projects across the globe [...]" it "represents all municipalities [...] in international policy dialogues, including on the SDGs, through United Cities and Local Governments [...] individual local governments also participate in international networks to exchange experiences with sustainability" (Kingdom of the Netherlands, 2017). Due to their competences, the VNG bears a lot of responsibility to implement policies on various topics, and as a result plays an important role in addressing the Global Goals. In 2018 it released a brochure summarizing the SDGs and tying them to the relevant legislation, frameworks, policies and instruments that are tackling every specific goal on a municipal level, as well as a list of suggestions that can be taken by local businesses and organizations to address that goal.

Some local frameworks are also relevant to note. In the first place, a Municipal Sustainability Index was developed in 2014 by the Drechtsteden Research Center, also known as the GDI,[6] which has been validated through the Joint Research Centre of the European Commission. It is a set of 24 indicators on the sustainability of each municipality in the Netherlands, showing where there are collective windows of improvement. The GDI gives each municipality a score on a 1-10 scale and analyzes the indicators separated into three main blocks: people and society, environment and energy, and economy. Every two years a new version of the GDI is presented. There is no specific indicator on food waste; there is however, and indication on household waste and on waste separation.

Also, in December 2016 the *Maatschappelijk Verantwoord Inkopen* (MVI) *Manifest* (Social Responsible Purchasing Manifesto) was signed by 6 ministries, 5 of the 12 provinces, and 121 of the 388 Dutch municipalities, as well as some other organizations such as universities and water boards. Social Responsible Purchasing entails that when choosing products and services to buy, organizations will also consider the impact of the environment and social effects of their purchase in addition to the price –which is a very important step towards dealing with food responsibly. By signing the manifesto these actors committed themselves to writing an MVI action plan according to their own ambition level. In 2018 an evaluation report was released, concluding that many organizations had struggled writing the action plan, but the central government agreed to support parties in doing so. It also groups the most important lessons, successes and tips for organization to succeed in their action plan.

In 2017, the *Gezamenlijke investeringsagenda* (Joint Investment Agenda) was signed by Dutch municipalities, provinces and water boards for the cabinet formation of that year. It is a joint proposal that addressed the main pillars for a sustainable Netherlands: energy transition, climate adaptation and

6. *Gemeentelijke Duurzaamheidsindex.*

circular economy, and indicated how each of these actors contributes to the urgent tasks at hand. Even though food waste was not explicitly addressed, one of the main topics of the proposal did involve a circular economy to be implemented, which partly implies that it is working towards eradicating food waste.

Lastly, some small companies such as *Kromkommer,* are selling prepared food made out of vegetables that would have been taken out in the early stages of the food chain, because of its "ugly" aspect or overproduction; are aimed at redefining how we look at the quality of food.

III. How Dutch municipalities localize the SDGs: the cases of Utrecht and Oss

Utrecht has a long tradition of sustainability. It was declared the first Dutch Human Rights City in 2012, recognition after which it founded the Human Rights Coalition in 2013, comprised of diverse stakeholders to cooperate on human right in the city (Department of European and International Affairs Utrecht, 2018). In 2015 Utrecht became known as the first 'Global Goals City' in the world, by taking it upon itself to ambitiously work towards the 17 SDGs, showing that it kept its commitment towards a sustainable future. The municipal government works towards the main themes concerned in the SDGs, such as healthy environment, sun energy, human rights and sustainable consumption, by partnering with companies in Utrecht and by supporting as well as starting particular initiatives for the goals (Heusinkveld, 2016). The project that started all of it is *Utrecht4GlobalGoals*, led by Marjolein Meulensteen. The partakers are currently working towards solutions for Utrecht: more partnerships between neighborhoods; setting sustainability standards for construction projects; starting an intergenerational council for the Global Goals; setting up education programs about food and giving immigrant women a voice in the gender debate (Heusinkveld, 2016), just to name a few.

Addressing target 12.3, Utrecht has also taken some action. Firstly, it is a Fairtrade Municipality since 2010, a big step towards SCP, by making citizens familiar with these products through food campaigns such as *Flairtje,* where participants need to include at least a certain amount of Fairtrade as well as regional products.

Some individual actors in Utrecht are also involved. For example, take the initiative started in 2013 by Thomas Luttikhold called *Wastewatchers*, aimed at reducing global food waste through a digital platform used by the food and hospitality sector in the Netherlands. Thanks to *Wastewatchers*, businesses in the food sector are able to tackle their food wastage through a personalized data analysis and observation of patterns, and Luttikhold is currently working with businesses throughout the Netherlands:

> "What we do with Wastewatchers is that we help chefs in the hospitality/catering/ hotel sector to perform better […] and improve their margin, and in the end they see

that food waste is reduced. […] we help chefs giving them insides in factual data" (Luttikhold, 2019).

Wastewatchers is not only a good option for businesses, but many of its general findings could be very useful in order to promote solution at larger levels of society, or as a precedent for multinationals that contribute to the food supply chain, such as supermarkets. Even though the individual citizen contributes to the problem and actions should be taken from home; in order to tackle the large-scale problem, large corporations are decisive actors. As Luttikhold (2019) explained, "50 million people are never going to take the step to reduce food waste, since they are dependent on where they get their food from […] I think it would be the supplier of food to consumers who is going to solve this problem […]". Therefore, the answer does not lie in the consumer himself, but in the food suppliers, which is why large corporations such as supermarkets could look at Utrecht for solutions. Moreover, purely idealistic objectives may not be the answer; instead "a solution which is scalable for everybody" (Luttikhold, 2019), and which we need to make attractive to all stakeholders as part of the process.

Another initiative worth mentioning is Instock, a restaurant in Utrecht that opened in 2016 after being a very successful project in Amsterdam and Den Haag. They create design meals with food leftovers from Albert Heijn[7] that otherwise would have been wasted.

Finally, there also is the case of Oss, which became a Fairtrade Municipality in 2013. The title has to be revised every two years, and was revised in October 2018, making it the fifth year in a row that Oss enjoyed it. This is all possible thanks to Global Goals Oss, a platform that comprises 35 representatives of local organizations that organizes a range of events and promotes fair trade products. The chair of Global Goals Oss, Maarje Aarts (2015), is convinced that "by playing different roles, the platform and the municipality strengthen each other".

IV. Results (levels of success and/or failure)

The LAP developed a good way of gaining experience on the subject of food waste, and pilot studies proved to be a useful tool in order to learn about the best ways to tackle food waste. It helped them in finding out how they will be moving forward until 2021, and a few crucial conclusions were reached: the effectiveness of actively involving more links in the chain as opposed to a sectoral approach, the importance of the role that the government plays, and the time-consuming need of developing trust between parties and actors.

With the government having such a prominent role in the success or failure of the actions taking place, it is problematic that the existing policy agreements fail to address the whole scope of the issue. The Policy Agenda for Sustainable Food Systems (2009), next to being in need of update, has not been an effective

7. One of the main supermarket chains in the Netherlands.

enough policy agreement towards food waste. The Dutch legislation is in need of some more policies tackling the issue of food waste first hand.

Despite this lack of governmental policies, many platforms and actions have proved to be successful in the Netherlands. The Taskforce, as well as the consequent *Samen Tegen Voedselverspilling* platform is one of the ones that have proved to provide the best results. As happened with the LAP pilot experiments, the motivation of the parties involved, the active role of leaders within the platform (such as WUR in this case) and the coalitions between actors have demonstrated to be one of the main factors adding up to successful progress.

Businesses, universities and the government remain the most influential actors in how progress is made towards target 12.3.

Having a methodological approach to how food waste is tackled, with a clear plan of action, has been manifested to be necessary in making any valuable improvement on the issue. The 'Moerman Food Use Hierarchy' should remain the main theoretical approach to tackling food waste, but if the theory is not translated into broken down practical steps, the same mistake will be made as happened with the MDGs in 2015. In that case, the objectives were clear, but the lack of an action plan turned out to be the main obstacle preventing food waste to be reduced significantly, and due to which the goals were not reached. Identifying short-term goals in the near future, by breaking down the main objective, has proven to be effective.

In conclusion, the most successful actions towards food waste have shown to be the ones uniting multiple actors from different sectors of Dutch society; secondly, the initiatives backed up (mostly financially, but also policy-wise) by the government; and thirdly, the ones that have translated the theoretical goals into attainable, practical actions. In contrast, the main obstacle for the Netherlands is to create policies tackling food waste, and determining *how* food waste should be regulated. The issue of translating the theory into practice remains the main limitation for the Netherlands.

2.3. Expectations for the coming 5-10 years

Many actors in the Netherlands are committed to reaching the 12.3 target but the question remains on their ability of translating commitments into practice.

Large corporations and supermarkets are taking considerable action and being the leading superstores in the Netherlands committed to reducing, and even stopping, the discarded edible food. As Stooker (2018) explains, some actions have been successful (largely as a result of the *Samen Tegen Voedselverspilling* platform), such as big chains who start to notice the urgency of the problem.

The LAP has actions planned out until 2012, and is constantly working on improving its planned steps. If the Netherlands continues to lean on partnerships and the government commits to supporting all current initiatives as well as new ones that may surface, it could be possible that the country significantly

reduces food waste in the following years, but to do so, the Taskforce needs to keep acting as a leader. Even though progress exists, changes in the numbers should be more drastic if the Netherlands aims at halving food waste in little over 10 years.

3. Evaluation and recommendations

3.1. General evaluation of the position of the Netherlands vis-à-vis SDG 12

The Netherlands has committed to a broad range of policies regarding SDG 12. Nevertheless "the existing targets are generally aimed at 2020, while most SDG targets have been set for 2030 [...]. National implementation of the SDGs requires that existing policy targets be updated and aligned to the corresponding SDG targets, both in terms of ambition level and target horizon" (Lucas *et al*., 2016). Also, the theoretical approaches to the issue of food waste need to be broken down into attainable steps. The Taskforce has shown that it is possible to do that, example which should be followed by other actors wanting to contribute.

The goal of reducing food waste by 20% in 2015 compared to 2009 (in relation to the UN's MDGs), was not achieved (PBL, 2016). Even so, the Netherlands has decidedly changed its approach to food waste since the implementation of the SDGs in 2015. It has become part of the national agenda, and many stakeholders are contributing to solve the issue, but progress is still slow.

The Dutch government also needs to keep acting as a leading actor, since it has been shown that other stakeholders and actors succeed better with national support, financially as well as policy-wise. The government seems to be quite involved with the actions taking place nationally in different sectors of society, and collaborations have proved to be the best mechanism in order to reach objectives faster.

As we have seen, in medium- and high-income countries, awareness stands on the top of the list, but many actions are being implemented and should further be applied in the producer, retail and consumer levels. The theory is perfectly outlined, but the materialization of the theory has proven to be more challenging.

One of the aspects in which it is easy to collaborate nationally is on the spread of knowledge and education on food waste throughout the food chain. The Netherlands Nutrition Center's website is a good way of educating the consumer in sustainable consumption patterns. It is the "foremost authority consumers turn to for scientifically evidenced, independent information on healthy and safe food, as well as for making more sustainable food choices" (Voedingscentrum, 2019). Even though the information could be much more extensive, consumers can find facts and figures regarding food waste and how

to reduce it. The importance of educating the consumer and changing their behavior is crucial, since they are the ones who contribute the largest amount of food waste on the whole, with a share of 33% of the total (Van Dooren & Mensink, 2018). The government should promote more initiatives, both online and in educational institutions, to increase awareness and knowledge at the consumer level in order to influence behaviors regarding consumption patterns. As mentioned before, the solution cannot solely rely on the individual consumer.

At the retail level, the steps taken by *Albert Heijn* should be encouraged and followed by other actors. In 2018, for example, it started removing the best-before date tags from fruit and vegetables in order to avoid discouraging people from buying perfectly edible foods. Moreover, it has started a system where consumers can buy certain foods that are not as fresh as others (even though perfectly safe to eat, like a ready-made salad from the day before) at a discounted price. Initiatives such as these are the ones that make a big impact as they reach a large amount of consumers with just a small policy change.

The answer to translating theoretical knowledge into action and policies may lay in small-scale proposals. Dominant actors in the food chain in the Netherlands may want to refrain from theorizing on abstract concepts regarding goals that are too ambitious in the reduction of food waste. In contrast, they might succeed if they focus on translating theoretical ideas into practice by looking at the conclusions and results reached by proposals such as *Wastewatchers*, which could be taken up on a larger scale, one step at a time.

3.2. List of specific recommendations

Governmental:

- Increase awareness of the issue food waste at the consumer level
    - Online platforms (e.g. Netherlands Nutrition Center)
    - Campaigns in schools and universities
- Increase collaboration with other stakeholders (e.g. universities, superstores, small-scale actors, regional organizations, online platforms)
- Support actions coming from other actors in the Netherlands
    - Through financial means
    - Through policy implementation
    - Through the lending of any other necessary resources
- Continuous dialogue with other stakeholders

Retail and catering:[8]

- Data analysis[9]
    - Insides in factual data
    - Retrieve general patterns of consumption taking into account external factors:
        - Weather influence
        - Time of the day
        - Day of the week
        - Peaks/lows of specific meals and/or products
    - Anticipate consumer behaviors
- Meal planning
- Repurposing of ingredients (e.g. Kromkommer, Buitenbeentjes)
- Repurposing of leftover food (e.g. Instock)
- Maintaining accountability of products in order to avoid spoiling
- Monitor portion sizes

Final Remarks

Unsustainable consumption and production patterns continue to be two of the main causes of degradation of the global environment in 2019, and it remains an urgent concern. In addition, we see that wealthy countries such as the Netherlands are the main contributors to the issue. However, these resourceful countries also have the necessary tools to address the matter, and they have proved to be able to make a difference if policy-making, proposals that can be put into practice, and collective action from different sectors of society are involved.

The Netherlands is not on the wrong track and is actively working towards target 12.3 in trying to reduce food waste. Coalitions between actors are what make the biggest differences, and actions that enjoyed governmental support have proven to be more successful. Nevertheless, local, municipal and local groups have also contributed to slowly progressing towards the reduction in food waste.

One of the main limitations that keeps on emerging is the translation of theoretical proposals into practice, and especially *policies,* effectively. Fortu-

8. Most of the proposals were elaborated thanks to the insights proposed by Thomas Luttikhold (2019), taking *Wastewatchers* as a model.

9. Platforms such as *Wastewatchers* help at exactly identifying the food waste patterns of a locations, and therefore can better address the issue in order to tackle where the food waste is coming from and how to reduce it.

nately, it has been proved to work if the main objectives are broken down into attainable sub-objectives that are intended to be completed in a shorter time span. This increases the effectiveness of any policy or action put into motion. This is also very visible in how the MDGs set for 2015 were dealt with, with many idealistic objectives for the country but without enough plans to convert those goals into an achievable reality. Nevertheless, the Netherlands is increasingly changing its approach, and seems committed to achieving target 12.3 before 2030. Also, the monitoring methodology that was used to measure the progress for the MDGs should not be disregarded, and can be considered one of the main successes.

Since the problem is mostly in the late stages of the supply chain in the Netherlands, the emphasis laid on achieving a Circular Economy (in line with the EU's objectives) is fitting. It is necessary to keep stressing and demonstrating that a continuous and unsustainable use of resources in not a need in order to grow economically.

In the retail and food industry, Luttikhold (2019) argues how "the biggest struggle is that other people are not seeing this problem the same as you do, so you have to adapt [...] to see where the problem is heading [...] because nobody can reach those with pure idealistic methods". Therefore, making the reduction of food waste appealing to everyone involved will also remain a future challenge.

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