

PLASTIC MATTERS

A state of affairs, facts, legislation &
recommended actions in Switzerland

December 2022



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OceanCare is a Swiss non-profit organisation. It was founded in 1989 and has a strong commitment to realistic and cooperative initiatives. The organisation works at national and international level in the areas of marine pollution, environmental changes, fisheries, whaling, sealing, captivity of marine mammals and public education.

OceanCare holds Special Consultative Status with the Economic and Social Council of the United Nations (ECOSOC) and is partner of the General Fisheries Commission for the Mediterranean (GFCM), the Convention on Migratory Species (CMS), and the UNEP/CMS Agreement on the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS), as well as UNEP/MAP. Since 2021, OceanCare is accredited observer to the Convention on Biological Diversity (CBD) and the International Seabed Authority (ISA). The organisation has been an observer at the IWC since 1992. OceanCare has also been accredited as part of the Major Group 'Science & Technology' to the United Nations Environment Assembly (UNEA), which is the governing body of UNEP and is a part of the UNEP Global Partnership on Marine Litter.

EXECUTIVE SUMMARY

Plastic pollution has become one of today's most pressing environmental and health issues. Due to an exponential increase in production and consumption of plastics over the span of not even two generations¹, plastics are ubiquitous. From the Arctic to Antarctica, from the deepest depths of the ocean² to the peaks of the Himalayas³, no corner of the Earth remains untouched by the plastic deluge. In the form of microplastics, they are in the air we breathe⁴, in the water we drink⁵, in the food we eat⁶. Plastics are not only a scourge to nature, but an emerging threat to human health as well⁷.

Switzerland is no less than any other place in the world confronted with this plastic crisis. While other countries might more visibly be buried under plastic waste, **the plastic problem in Switzerland presents itself in many, more insidious ways.**

Every year around **14'000 tonnes of macro- and microplastics** find their way into the country's soils, surface waters and sediments. While the littering of macroplastic should certainly not be minimized, the microplastic pollution is even more worrying. Microplastic pollution of Swiss lakes and rivers is of the same order of magnitude as of the oceans. But also on the snowy peaks of the alps, in remote mountain lakes, or in nature reserves; wherever has been looked for them, microplastics are present in considerable concentrations.

PLASTIC POLLUTION IN SWITZERLAND – SOME FACTS

- 14,000 tons of macro- and microplastics end up in the Swiss environment every year. Most of this comes from tyre abrasion (8,900 tonnes) followed by littering (2,700 tonnes)⁸.
- Littering is not just a water problem. According to the Swiss Federal Laboratories for Materials Science and Technology, 100 tonnes of macroplastics are emitted to waters each year in Switzerland, compared to 4,400 tonnes deposited to soils⁹.
- A 2013 study of Swiss lakes found **microplastics in almost every sample**¹⁰.
- About **55 tonnes of plastic enter Lake Geneva every year**. A large part of this in the form of microplastics. This adds up 580 tonnes already accumulated in the lake¹¹.
- In the **Rhine** at Basel, an average of 238,887 microplastic particles per km² have been measured¹², and the **Rhône** is estimated to transports an estimated 10 kg of microplastics to France every day¹³.
- An estimated **53 tons of microplastics have by now accumulated in floodplains in Swiss nature reserves**¹⁴.
- Considerable amounts of microplastics have been detected in the **snow of the Alps**¹⁵ as well as **remote mountain lakes**¹⁶.

And yet, the widespread image of Switzerland is one of pristine nature, order, and cleanliness. The country is portrayed as a world champion in waste management and recycling. However, the reality is that most plastic waste in Switzerland is incinerated. This report highlights that this **very linear plastic system**, predominantly focussed on waste management, insufficiently addresses the plastic problem in the country.

Linked with their way of life, **with 127 kg per year, Swiss inhabitants have one of the highest per capita plastic uses in the world** (section 1.1). To take care of the waste produced by this resource-intense lifestyle and systematic overconsumption, **the country strongly relies on incineration**. Where plastic recycling, let alone reuse, is low, most Swiss plastic ends up incinerated, mainly after only a short usage of the material. This creates a *hidden problem* in the form of air pollution and highly toxic residual incineration waste. Besides, waste management – be it incineration or recycling – can only take care of properly collected and processed plastic. It does not tackle littering, nor is it a solution for the major problem of plastic leakage to the wider environment during use (section 1.2).

As to the first, this report shows that, despite its clean image, **in Switzerland too, a vast amount of plastic continues littering fields, forests, waterways and lakes**. Cleaning up this litter costs the country an estimated CHF200 million

per year. And while some of the litter is being retrieved, many small items like cigarette butts accumulate in the environment, especially in non-residential areas (section 1.3). Regarding the second avenue of plastic leakage, this concerns microplastics due to the abrasion, shredding and spilling from products made from or containing plastic. **Tyre wear, microfibres from synthetic clothing, or microbeads and liquid polymers intentionally added to products are important sources of plastic pollution in the country.** Once out in the environment, these macro- and microplastics add to a chemical cocktail about which awareness of its potential risks for the environment and human health is gradually emerging (section 1.4).

In Switzerland, **legislation exists through which many of these issues could be tackled.** Among other laws, the Environmental Protection Act, or the Chemicals Act contain provisions which could be applied to halt the excessive use of single-use plastics (section 2.1).

SWISS LAWS TO REGULATE PLASTICS

In Switzerland, many problems related to plastics could already be taken care of through stringent application of existing laws. There is not so much need for new laws, but for the consistent application of existing ones. Notably:

- The **Environmental Protection Act, art. 30a** could be used to prohibit disposable plastic items essentially only used once, like **take-away food items** or **plastic bags**.
- The **Environmental Protection Act, art. 26** could be used to ban **microbeads** intentionally added to articles such as personal care and cosmetics products.
- Also the **Chemicals Act**, or the **Waste Ordinance** or **Beverage Container Ordinance** could be invoked to further regulate the production, use, or disposal of plastic.

However, in practice, **the execution of this legislation is lacking. Existing ordinances are saying little to nothing about plastic** (section 2.2). Through an in-depth analysis of parliamentary interventions on plastic matters, this report finds that the **Federal Council so far appears reluctant** to use the law to regulate plastics more strictly. Instead, it focusses on voluntary measures (section 2.3).

This report suggests a change. Switzerland should adopt a stronger regulatory approach and should move from being a laggard to being a leader within the European landscape.

The recent regulatory developments within the European Union could give input to a more in-depth reflection on plastics and its problems in Switzerland too, and help the country develop its own approach tailored to the national circumstances (section 3.1). Also, following the recent adoption of the resolution ‘End Plastic Pollution: Towards an International Legally Binding Instrument’ at the United Nations Environment Assembly in 2022, countries are expected to develop national action plans to contribute to end plastic pollution. This offers Switzerland the opportunity to gear up its efforts against its plastic overconsumption and associated problems (section 3.2).

As part of such a reflection, and to develop meaningful and effective measures, it is important to acknowledge that the problems related with an increasing use of plastics have been known about for a long time and **that early warnings were ignored**, including in Switzerland (section 4.1-2). And, to structurally tackle these problems, we have to understand how **they connect with many of today’s other socio-environmental issues** (section 4.3).

Considering how the plastic crisis manifests itself in the country, while reflecting on the legal-regulatory framework in place, as well as on the origin and interconnectedness of the problem, **this report provides an in-depth discussion of possible solutions and actions to be taken.**

In this regard, it first of all proposes a set of **measures that can be implemented without delay**, if there is the political will to do so. In line with art. 30a letter a of the Environmental Protection Act, the Federal Council has the potential

to prohibit products intended for one-time-only, short-term use when the benefits of such products do not justify the harm to the environment that they cause. This applies to both **disposable take-away items** and **single-use bags**. In a similar sense also **intentionally added microbeads** can be banned under existing law (section 5.1).

Subsequently, we urge a comprehensive discussion about **what is understood by Plastic and the Circular Economy**. While both concepts are central to today's plastic debate, clear legal definitions are lacking. This hampers the systematic and comprehensive development of further actions and futureproofing of our legislation, and therefore needs to be remedied (section 5.2).

Finally, building on this reflection about comprehensive legal definitions of key concepts, the report discusses **a set of further measures to effectively address the plastic crisis in its various dimensions**. Such measures should focus on the reinstalment of a comprehensive **reuse system**, first and foremost for glass bottles, as well as on the limitation of **tyre wear**, **microfibres** and **cigarette butts**. Furthermore, work should be done about the regulation of **bioplastics** and **liquid polymers** (section 5.3).

Thus, through its examination of the main plastic problems in Switzerland and the legal dispositions under which these can be tackled, and especially by proposing concrete measures to do so, this report intends to stir up and accelerate the Swiss debate on plastic. As such, **it calls for comprehensive policy action at the federal level, and urges Switzerland to take care of the plastic crisis**.

ENDNOTES

- 1 See: Grid Arendal (2021), [Global plastic production, accumulation and future trends](#).
- 2 National Geographic (Last updated: 02.06.2022), [Plastic Bag Found at the Bottom of World's Deepest Ocean Trench](#).
- 3 Napper et al. (2020), [Reaching New Heights in Plastic Pollution—Preliminary Findings of Microplastics on Mount Everest](#). *One Earth*, 3 (5).
- 4 The Guardian (21.12.2021), [No mountain high enough: study finds plastic in 'clean' air](#); The Guardian (27.12.2019), [Revealed: microplastic pollution is raining down on city dwellers](#).
- 5 The Guardian (06.09.2017), [Plastic fibres found in tap water around the world, study reveals](#).
- 6 Conti et al. (2020), [Micro- and nano-plastics in edible fruit and vegetables. The first diet risks assessment for the general population](#). *Environmental Research*, 187.
- 7 De-la-Torre G.E. (2019), [Microplastics: an emerging threat to food security and human health](#). *Journal of Food Science and Technology*, 57; also: Campanale et al. (2020), [A Detailed Review Study on Potential Effects of Microplastics and Additives of Concern on Human Health](#). *International Journal of Environmental Research and Public Health*, 17 (4).
- 8 Der Bundesrat (Bern, 23. September 2022), [Kunststoffe in der Umwelt. Bericht des Bundesrates in Erfüllung der Postulate 18.3196 Thorens Goumaz vom 14.03.2018-18.3496 Munz vom 12.06.2018- 19.3818 Flach vom 21.06.2019- 19.4355 CVP-Fraktion vom 27.09.2019](#).
- 9 Kawecki D. & Nowack B. (2019), [Polymer-Specific Modeling of the Environmental Emissions of Seven Commodity Plastics As Macro- and Microplastics](#). *Environmental Science & Technology*, 53 (16), p. 9669; also: EMPA (2019), [5000 tons of plastic released into the environment every year](#).
- 10 Bundesamt für Umwelt (11.12.2014), [Medienmitteilungen- Erste Bestandesaufnahme von Mikroplastik in Schweizer Gewässern](#).
- 11 Boucher et al. (2019), [\(Micro\) plastic fluxes and stocks in Lake Geneva basin](#), *TrAC Trends in Analytical Chemistry*, 112.
- 12 Mani et al. (2016), [Microplastics profile along the Rhine River: Supplementary Table 2 - Microplastic particles km² in categories and total \(300 µm–5 mm\) from the Rhine and lakes](#), *Scientific Reports*, 5; Universität Basel (2015), [Kleinste Plastikteilchen: Der Rhein gehört weltweit zu den am stärksten belasteten Strömen](#).
- 13 Eawag, [Microplastics in Swiss waters](#).
- 14 Scheurer & Bigalke (2018), [Microplastics in Swiss floodplain soils](#). *Environmental Science & Technology*, 52 (6).
- 15 Bergman et al. (2019), [White and wonderful? Microplastics prevail in snow from the Alps to the Arctic](#). *Sciences Advances*, 5 (8).
- 16 Angel de Jesús Negrete Velasco et al. (2020), [Microplastic and Fibre Contamination in a Remote Mountain Lake in Switzerland](#). *Water*, 12 (9).

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LIST OF ABBREVIATIONS

BPA	Bisphenol A
CFCs	Chlorofluorocarbons
ECHA	European Chemicals Agency (EU)
EMPA	Swiss Federal Laboratories for Materials Science and Technology
EPA	Environmental Protection Agency (US)
EPR	Extended producer responsibility
FOEN	Federal Office for the Environment (CH)
GATT	General Agreement on Tariffs and Trade
GHG	Greenhouse gases
IPEN	International Pollutants Elimination Network
MP	Microplastics
Mt	Million tonnes
p.c.	Per capita
PCCP	Personal care and cosmetic products
PET	Polyethylene terephthalate
PVA	Polyvinyl alcohol
SUP	Single-use plastic
tfF	Translated from French
tfG	Translated from German
TFEU	Treaty on the Functioning of the EU
UNEA	United Nations Environmental Assembly
Vkm	Vehicle km
WIP	Waste Incineration Plant
WWTP	Wastewater Treatment Plant

INTRODUCTION

“Without doubt, plastics have shaped our lives and will shape the future¹” and “it is difficult to imagine life without it²”. The **question is if that’s a good thing**. Over the past years, plastics have become an increasing cause for concern. A growing number of studies and reports^a, clean-up campaigns and awareness-raising initiatives, industry-pledges³, or public policies^b; all try to grasp **a way of life turned into a problem**.

Also in Switzerland, plastic is both omnipresent, and raising increasing concern. According to a poll conducted by gfs.bern, almost three quarters of the Swiss population are of the opinion that Switzerland has a plastic problem, 26% even see a massive problem and the majority (55%) wants legally binding measures⁴. The country uses far too much plastic and produces too much waste. Despite its image of being pristine, littering is a problem with an excessive amount of plastic ending up in the environment, and this is far from the only worrisome thing about plastic. Yet, politicians and decision-makers differ in their understanding about the scale of the problem and how much urgent and decisive action is needed.

Elaborating on recent studies by the Federal Office for the Environment on plastic in Switzerland (FOEN)⁵, this OceanCare report intends to provide a comprehensive overview on the situation and extent of the plastic problem in the country, identify recommendations and encourage national action. Therefore, it essentially focuses on three things: firstly, it presents the current situation of the main problems related to plastics in Switzerland. From the issue of overconsumption and waste management almost entirely relying on incineration, to the many adverse effects caused by plastics ending up in the environment, the plastic challenges in Switzerland are multiple and considerable (chapter 1). Next, attention turns to what has been done so far to deal with plastics in Switzerland through legal and regulatory action at the federal level (chapter 2). This is compared with European and international action (chapter 3). Finally, we reflect on the deeper roots of today’s plastic crisis^c and its interconnection with other socio-environmental challenges (chapter 4), and based on this, elaborate on what we believe should be done to structurally tackle the problem through concrete measures and actions (chapter 5).

ENDNOTES

- 1 Plastics Europe, *Plastics – The Facts 2019*, p. 4.
- 2 World Economic Forum (25.01.2019), *Plastic is a global problem. It’s also a global opportunity*.
- 3 See for instance: Danone, *Circular economy of packaging*; Coca Cola Great Britain, *A World Without Waste*; *Operation Clean Sweep*; Or Plastics Europe (2018), *Plastics 2030. PlasticsEurope’s Voluntary Commitment to increasing circularity and resource efficiency*.
- 4 Gfs.bern (August 2022), *Studie zum Plastikverbrauch in der Schweiz. Hohe Problemwahrnehmung in der Bevölkerung. Die Bereitschaft für staatliche Lösungen ist in der Bevölkerung gross*; see also: Greenpeace, USITAWI, WWF (2018), *Wasser plastikfrei – Marketagent.com*, slide 5.
- 5 See i.a. Der Bundesrat (Bern, 23. September 2022), *Kunststoffe in der Umwelt. Bericht des Bundesrates in Erfüllung der Postulate 18.3196 Thorens Goumaz vom 14.03.2018- 18.3496 Munz vom 12.06.2018- 19.3818 Flach vom 21.06.2019- 19.4355 CVP-Fraktion vom 27.09.2019*; Lauwerier et al. (2021), *Comparing European and Swiss Strategies for the Regulation of Plastics. Commissioned by the Federal Office for the Environment (FOEN) - Cahier de l’IDHEAP 318/2021*; Wiesinger et al. (2020), *The Identity of Oxo-Degradable Plastics and their Use in Switzerland*. Project Report commissioned by the Federal Office for the Environment (FOEN) - *ETH Zurich*; Michele Steiner (2020), *Schlussbericht. Mikroplastik: Eintrag von Reifenabrieb in Oberflächengewässer*. Im Auftrag des Bundesamtes für Umwelt (BAFU) – *wst21: Erny et al. (2020), Le plastique dans l’environnement Suisse. État des connaissances sur les impacts environnementaux des plastiques (micro- et macroplastiques). Sur mandat de l’Office fédéral de l’environnement (OFEV) – EPB*.

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- a Just for a start, see the two extensive reports recently published by the UN Environmental Programme; UN Environmental Programme (21.10.2021a), *Drowning in Plastics – Marine Litter and Plastic Waste Vital Graphics*; UN Environmental Programme (21.10.2021b), *From Pollution to Solution: a global assessment of marine litter and plastic pollution*.
 - b The most visible and widely discussed being the *European Strategy for Plastics in a Circular Economy*, launched by the European Commission in January 2018 (see 3.1 below).
 - c That we have a *plastic crisis*, not only some environmentalists say... Cf. Marc Schneider, CEO Nestlé: “*Plastic waste is one of the biggest sustainability issues the world is facing today [...]*” (Nestlé, *Working towards a waste free future*); or, Coca Cola Australia, *Question: What role can Coca-Cola play in solving the plastic crisis?*



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PLASTICS IN SWITZERLAND, AN INCREASING PROBLEM

SUMMARY

This chapter discusses the state of the plastic problem in Switzerland. It shows that:

- Swiss plastic **consumption is unjustifiably and unsustainably high**. Viable alternatives and reuse-systems exist.
- We try to solve our problems by **incinerating the waste created by our overconsumption**. This hinders a reorientation towards reuse and recycling, and does nothing about the many problems caused by plastic leaking out into the environment during use.
- Leakage consists of **littered plastics**, mainly from single-use packaging items. But also **microplastics** emitted from products made from or containing plastic is a considerable source of plastic pollution.
- Ending up in the environment, **microplastics cannot reasonably be recovered again**. They add to a toxic cocktail, the scale and scope of which are still largely unknown, but whose adverse effects (for both the environment and human health) are more evident by the day.

This chapter identifies (1) the main **characteristics and specificities of plastic consumption and waste treatment in Switzerland** as well as (2) the main **problems** regarding plastic usage and pollution. To do so, the chapter is structured as follows:

Section 1.1 looks at Swiss plastic consumption while putting it in both historical and geographical perspectives. Next, section 1.2 turns to how we try to take care of the waste from this consumption, while section 1.3 discusses how we often do not take care of it, even if we could. Then, section 1.4 discusses a form of plastic waste of which we cannot even take care once it leaks out, even if we would; i.e., microplastics. Finally, section 1.5 resumes the chapter's main findings, and section 1.6 presents some reflections and recommendations for further action.

1.1 PLASTIC CONSUMPTION IN SWITZERLAND

How much plastic is used in Switzerland? **The truth is we do not know**. Detailed numbers are circulating, yet it can be wondered how closely they describe the actual situation. Most commonly, it is stated that about 1 million tonnes (Mt) of plastic are consumed in Switzerland per year¹. This is based on data from the Federal Office for the Environment (FOEN)². However, this amount (and related data on waste, recycling, incineration...) follows from an estimation dating back to 2010³, and without further argument supposed to be still valid today⁴. Besides, these data are but estimations with an uncertainty range of ca. +/- 10%⁵, and do not include synthetic fibres^a – meaning that an important share of plastic is not considered⁶.

a Although the Federal Office for the Environment – cf. Federal Office for the Environment (Last modification 01.07.2022), [Plastics](#) – recognises the use of plastics in clothing, the assessment from 2010 only considers granulates and their products. The flow-model presented by Schelker & Geisselhardt (2011), [Projekt „Kunststoff-Verwertung Schweiz“- Bericht Module 1 Und 2 – Redilo](#), p. 13, serving as a basis for the FOEN data, only talks about “*Granulate, Halb- und Fertig-Fabrikate*”, and does not mention fibres or the products made thereof. The fact that this flow-model is based on the work of PlasticsEurope which throughout its publications repeatedly specifies that their data do not include various, much used synthetic fibres further confirms that most synthetic fibres are not included. – Note that the non-inclusion of synthetic fibres in overall numbers about plastic production/ consumption is common. For instance, the [EU Strategy on Plastic in a Circular Economy](#), p. 2 mentions a global production of plastics of 322 Mt in 2015. This only concerns resins, not fibres, as we can learn from Plastics Europe (2016), [Plastics – the Facts 2016](#), p. 12; also mentioning 322 Mt while specifying that this “*[d]oes not include the following fibers: PET-, PA-, PP- and polyacryl-fibers*”.

Yet, while the accurateness of the numbers is questionable, **general trends are clear enough**:

Considering the estimated 1 million tonnes of plastic used in 2010; this makes an average consumption of 127 kg of plastics/person^b. Linked to this high consumption, each Swiss on average produced 95 kg of plastic waste^c. Compared to its direct neighbours, Germany, Austria, France and Italy, Switzerland has the highest waste production per capita⁷. Based on the overview from 2010, approximately 430,000 tonnes (43%) of the 1 Mt were used for less than a year before they became waste. Per capita, this is 55 kg of short-used plastic. Supposedly the large majority thereof concerns disposable plastics, only used once. According to Greenpeace, 40% of plastic in Switzerland is used in packaging⁸, and a report by Minderoo published last year ranks **Switzerland eight among the countries with the highest per capita amount of single-use plastic waste**⁹. As the volume of plastic processed in Switzerland has slightly increased over the last years¹⁰ and the export of both finished and semi-manufactured plastic products remained overall stable¹¹, while the import of such products into the country has increased¹², at the very least, it is safe to assume that plastic consumption – and waste thereof – has not declined since.

A recent report from September 2022, published by the FOEN in response to multiple parliamentary interventions¹³, corroborates this. Although some numbers about specific applications or product groups may vary considerably from previous estimations, and therefore confusion may arise about how these estimations relate over time^d, this report confirms a high plastic consumption and related plastic waste production in Switzerland. Also, the high share of short-used plastic is reaffirmed, and overall, the report estimates that production and consumption of plastics have increased in recent years¹⁴.

Of course, one could argue that we consume so much plastic and produce so much waste because of our high living standard¹⁵, our prosperity¹⁶ and well-being^{17,e}; and that *“our lifestyle would not be possible without plastics¹⁸”*. And yet, **a comparative perspective should make us wonder how sustainable and justifiable this lifestyle is**. First, this high plastic consumption is a relatively new phenomenon. For Western Europe, per capita plastic consumption was estimated at 136 kg in 2015, but only 10 years before, in 2005, it was still 99 kg, and in 1980 it was a mere 40 kg^f. And, Switzerland, in 2005, generated 661 kg/capita of municipal waste but by 2019, this was 709 kg/capita¹⁹. *Are we to conclude that our quality of life was lower in 2005 than it is today?* Moreover, what we have ourselves, we cannot deny others. When our living standard apparently is linked with our plastic consumption, then it might be argued that developing countries – as part, and even a pre-condition of their development – will (have to) consume (much) more plastic too.

b The Federal Office for the Environment (Last modification 01.07.2022), *Plastics*, *op cit.* mentions 125 kg. But, 1 Mt/residing population = 127 kg; OFS, *Population – 2010* = 7,870,134 persons.

c 750,000 tonnes of post-consumer plastic waste as given by Schelker & Geisselhardt (2011), *op cit.*/ residing population (OFS, *op cit.*).

d For instance, as noted before, the estimation for 2010 did not include synthetic fibres. This new assessment (which concerns 2017) does. Although the annual amount of plastic consumed in Switzerland is invariably put at 1 Mt per year, now 9 % (90,000 tonnes) thereof concerns plastic used in textiles. How this can be, remains unexplained. Furthermore, while Schelker & Geisselhardt (2011), p. 42, put the amount of plastic used in agriculture in 2010 at 20,000 tonnes, the new report, p. 12, only puts this at 10,000 tonnes. Also, the amount of plastic used in automotive applications notably decreased with about 30%, from 90,000 tonnes to 60,000 tonnes. Although these are remarkable changes, to our understanding neither the new FOEN report, nor the underlying research elaborates on this. Of course, as the report notes on p. 10, the figures given are model calculations, some of which are subject to major uncertainties. Nonetheless, major differences with previous estimations could do well with more clarification.

e Notably, reference is made here to the same publication as in the previous note; yet where the German version talks about *‘Wohlstand’* (= prosperity), the French version talks about *‘bien-être’* (= *‘Wohlbefinden’*; well-being)

f While precise numbers differ somewhat between publications, in both *The Compelling Facts About Plastics- 2005* (pp. 6-7) and *The Compelling Facts About Plastics- 2006* (p. 8), as well as *The Compelling Facts About Plastics- 2007* (p. 8), and *The Compelling facts About Plastics- 2009* (p. 6), Plastics Europe presents data on this.

ABOUT SUSTAINABLE PLASTIC CONSUMPTION IN SWITZERLAND. AND IN INDIA.

We may well want to make the Swiss (plastic) economy more circular²⁰, but **is it sustainable and just to do so at current – or even slightly lower – levels of consumption?** Like many of today's issues, plastic cannot be dealt with separately by a country without regard for what happens elsewhere. So, is it *sustainably realistic* – i.e., would it be enough to manage global problems related to plastic – for Switzerland to split its annual consumption by half, if at the same time, for instance, India triples its use of plastic? While that would still mean an average Indian consumption of just 33 kg/person²¹ (lower than what we had in 1980), the extra 22 kg/person implies an immediate raise of overall world consumption with 29.8 million tonnes^g. Even if all of Europe cuts consumption by half to about 50 kg/person, this Indian increase to – the still much lower – 33 kg/person, would mean a considerable rise of overall world consumption. And of course, with an estimated world average of 45 kg/person in 2015²², India is far from the only part of the world using much less plastic than we do. From a sustainability point of view, this shows the full complexity of the problem.

1.2 PLASTIC WASTE IN SWITZERLAND, AND HOW IT IS (NOT) TAKEN CARE OF ...

1.2.1 We solve our problems... by burning them

As with respect to the way we deal with plastic waste, **recycling and reuse are limited**. Switzerland may well pride itself on high levels of recycling for many materials but plastic is certainly not one of them²³. On the website of the Federal Office for the Environment, we can read that “[i]n contrast to many other countries, Switzerland has not used landfill sites for combustible waste since the year 2000. Therefore, all plastic waste must be recycled or incinerated in an environmentally compatible manner²⁴”. In practice, priority clearly lies with the second of these two options. Based on the overview from 2010, only 145,000 tonnes (19%) of plastic waste are subject to sorting, of which still 65,000 tonnes end up incinerated; meaning that only 80,000 tonnes (10%) are recycled. And, as recycled plastics consist of about 36,000 tonnes of PET (Polyethylene terephthalate) bottles²⁵, this leaves even more limited amounts of other recycled plastics. All this contrasts with the 700,000 tonnes of plastic waste (90%) being incinerated in one of the country's 30 waste incineration plants (WIPs)²⁶ or in cement works. The recent FOEN report from September 2022 essentially reaffirms these findings. While according to this new estimation incineration in both waste incineration plants and cement works would seem to be a bit less (about 85%)²⁷, it obviously remains the main avenue for dealing with plastic waste^h.

With such a high proportion of plastics ending up incinerated after mostly a (very) short usage, Switzerland is far from any circular economy as promoted by the FOEN²⁸. Plastic that is incinerated evidently cannot flow back to *close the loop* as part of a new cycle of use. In that sense “it is certainly true that waste-to-energy plants don't have a place in a circular economy²⁹”.

According to Plastics Europe – the leading industry association of plastic producers in Europe - “a strategy including energy recovery is not contradictory to achieving good recycling results³⁰”. Yet, besides the fact that Plastics Europe puts the Swiss recycling rate invariably somewhere between 25 and 30% and the energy recovery rate at 70-75%³¹- which is notably different from the data provided by the Swiss authorities (which remains unexplained) – it is curious how this would work. Obviously, the more plastic waste is incinerated, the less can potentially be recycledⁱ. “[Plastics] are responsible for 35% of the calorific value at [WIPs] (or almost 60% if composite packaging, which primarily comprises plastics, is also taken into account) and therefore make a considerable contribution to energy recovery at these facilities³²”. So, even if no new incineration plants are planned, renovation and replacement projects³³, and the

g 29,758,124 tonnes; based on an Indian population of 1,352,642,000 people in 2018; [UN World Population Prospect 2019](#).

h While the report, p. 23, is confusing as to the share of separately collected plastic that in the end is still incinerated, and how this is represented in *Tabelle 1*, p. 22, it seems that the total amount of incinerated plastic waste might still be 90%

i An enquiry in the UK for instance found a direct correlation between regions tied into incineration contracts and low recycling rates; Client Earth (09.03.2021), [The environmental impacts of waste incineration](#), also: Zero Waste Europe (31.10.2017), “Deliver or pay”, or how waste incineration causes recycling to slow down.

development of a comprehensive infrastructure to capture CO₂ emissions from Swiss incineration plants³⁴ maintain incineration capacities and interests to which will have to be lived up. This is countering a reorientation towards a credible increase in plastic recycling asked for by the Council of States³⁵ and proposed by Swiss Recycling³⁶, but also risks making Switzerland remaining a laggard. While many other European countries are also still relying on incineration to take care of (plastic) waste, the EU seems no longer to support waste-to-energy³⁷.

Besides, claims about possible ecological benefits^j of waste-to-energy compared to other waste treatments do not hold up. First, available comparisons essentially focus on *incineration vs recycling*³⁸, and not *incineration vs reuse* (i.e., without letting the product become waste in the first place), or even more so *reduced use*. Secondly, **arguments that energy recovery from incinerating plastic waste presents a sustainable alternative to the use of fossil fuels are highly questionable, and seem mainly intended to keep the plastic industry happy**³⁹. At least for plastic, the claim of waste-incineration being a source of renewable energy⁴⁰ cannot be maintained^k. Overall, 99% of plastic feedstock is produced from fossil fuels⁴¹, **and an estimated 4–8% of the world's oil production is used to make plastics. This is equivalent to the oil consumption of the global aviation sector**⁴². According to a recent report by the *Carbon tracker Initiative*, this even **may be as high as 9%**⁴³. Only half of this is used as material feedstock, the other half as fuel for the production process⁴⁴. Obviously, this second half will not be *regained* by energy recovery. Besides, this only concerns oil, and is in addition to natural gas used as material feedstock and fuel⁴⁵. For instance, in the US, not oil but gas is the major feedstock for plastic production⁴⁶, and European production is also increasingly fuelled by fracked gas imported from the US⁴⁷.

“ Incinerating plastic waste equals incinerating fossil fuels and has the same consequences, if not worse.

The idea that by incinerating waste we would be saving hundreds of thousands of tonnes of fuel⁴⁸ is just wishful thinking. **Incinerating plastic waste equals incinerating fossil fuels and has the same consequences, if not worse.** Not only are plastics made from fossil fuel, but especially in case of disposable plastic, incinerated after only a brief usage, the energy needed to produce this object in the first place should be considered too. Therefore, robust Life Cycle **Assessments of plastic need to consider its real, overall lifecycle; not just gate-to-grave but cradle-to-grave.** Such assessments should not just look at plastic from its production but must go further upstream to incorporate pre-production. It should also integrate impacts due to the exploration and exploitation of oil and gas and has to take into account the potential risks, such as oil spill disasters and the adverse impact of ocean noise pollution during these activities, on fish distribution, abundance, catch rates and the tiniest organisms (e.g., zooplankton serving as food to large whales)⁴⁹.

In this regard, it should be noted that **fossil CO₂ (compared to biogenic CO₂^{50,l}) counts for about 48% of emissions from waste incineration in Switzerland**⁵¹. A considerable share of incinerated waste in Switzerland may well exist of paper/cardboard, fresh biomass, or wood⁵², an essentially equal share exists of waste from products made from fossil fuels; i.e., plastics⁵³. Their incineration generates 2.1 Mt of fossil CO₂ per year⁵⁴. This indeed corresponds to half of the **overall amount of CO₂ emissions from waste incineration plants**⁵⁵, **and represents 4.5% of all greenhouse gasses (GHG) emitted in the country**⁵⁶.

Finally, except for GHG, incineration also emits many other outputs harmful to nature and humans. The incineration industry claims that modern incinerators using advanced emission control technologies reduce climate impacts and toxicity⁵⁷. Yet, filters do not prevent all hazardous emissions, such as dioxins and ultra-fine particles particularly harmful to health, from escaping into the air⁵⁸. And *“extensive evidence demonstrates the harmful short- and long-term effects*

j Notably, in this regard, Al-Salem S. (ed.) (2018), *Plastics to Energy: Fuel, Chemicals, and Sustainability Implications* – Elsevier - William Andrews, p. 59 declares that *“the process of energy recovery by incinerating plastic has immense environmental benefits”*. But then again, another study from March 2020, looking at CO₂ emissions of different end-of-life treatments in relative emissions indexed to incineration, situates *incineration with energy recovery* between 80-90% of *simple incineration*; Vollmer et al. (2020), *Beyond Mechanical Recycling: Giving New Life to Plastic Waste*. Angewandte Chemie International Edition, 59 (36), Figure 2.

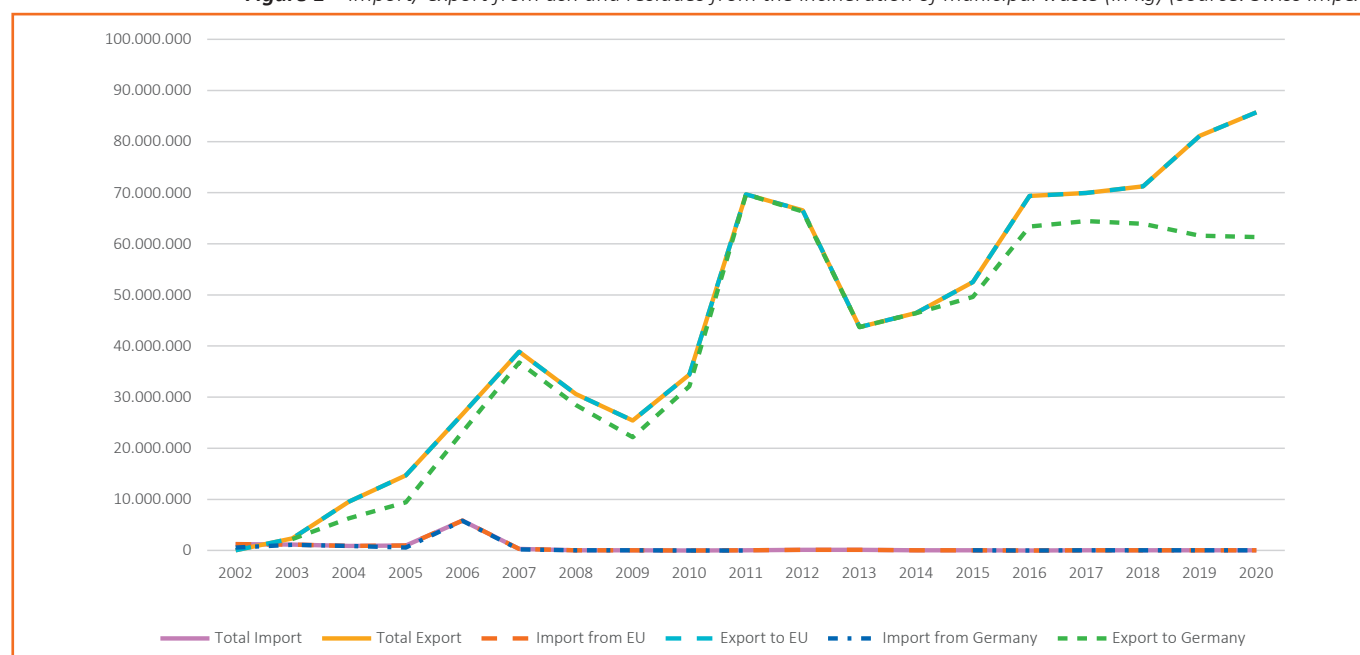
k Note in this regard that in the EU, waste is only classified as a source of renewable energy when it is *biowaste* or *the biodegradable fraction of waste* [...], cf. [Directive \(EU\)2018/2001](#), art. 2 (24), (29).

l Even about biogenic CO₂, we should not fool ourselves. It may well be *“generated from living organisms and [be] already in the planet’s carbon cycle [...] it’s still CO₂, no different than the CO₂ that comes from burning fossil fuels. Had it been left in the tree or turned into buildings, the CO₂ would have been stuck in the wood for many decades to come. Instead, it’s being released in a big CO₂ burp right now”*; Treehugger (21.09.2019), [Get Ready for the Onslaught of “Smart Plastic Incineration”](#).

of waste incineration's emissions and byproducts⁵⁹". Apart from air emissions, incineration also produces highly toxic by-products, such as fly ash, bottom ash, and sludge⁶⁰. This hazardous waste poses a new waste disposal problem, which Switzerland seems to solve by exporting it abroad⁶¹, for the last 30 years⁶² mainly to Germany⁶³ (see Figure 1).

We reassure ourselves that pollution related to incineration – such as the dioxins recently found in soils in Lausanne⁶⁴ – are something we inherited from the past. But we should not forget how at their inauguration, incineration plants were considered an improvement⁶⁵. And, about the plant in Lausanne, we were even told that it was “one of the best purified in the whole world, thanks to its purification system and the washing of gases⁶⁶” (translated from French-tfF^m). Besides, whilst heavily subsidised by the Confederation for a considerable time⁶⁷, already more than 30 years ago we tried to take measures to control pollution from incineration plants⁶⁸ because we were well aware that it continued to occur⁶⁹. And, as far back as 1988, we knew that we had “to put in place a concept for diminishing the production of waste before constructing a new incinerator⁷⁰” (tfF).

Figure 1 – Import/export from ash and residues from the incineration of municipal waste (in kg) (source: Swiss Impex)



1.2.2 The false promises of plastic recycling

1.2.2.1 Recycling, not the solution we hoped for...

All this is not to say that just more recycling would solve everything. **Recycling can be part of the answer, but it is far from the golden ticket. We cannot recycle ourselves out of the problem.** That is why just comparing incineration to recycling (see 1.2.1 above) makes little sense. Plastic recycling in Switzerland is low, and we should explore how to increase it. But it is not the ultimate solution. Recycling has many limits.

First, recycling obviously only works for plastic waste that can be collected. However, as discussed hereafter (see 1.4 below), most plastic ending up in the environment does not come from objects that *simply* can be collected in order to be recycled; but from abrasion, shedding and leakage during normal use of a product made from, or containing plastic.

Second, for instance a 2019 study promises a polymer that can be “*manufactured, used, recycled and re-used without losing value – suggest[ing] exciting new paths for next-generation plastics with minimal environmental impact⁷¹*”; a fact which at the time made a lot of positive buzzⁿ. Yet so far, no real-world, let alone large-scale application of this

m Translated from French – tfF; translated from German – tfG, are statements translated with Google translate and/ or DeepL and then systematically checked by the author to make them fit as close as possible the original statement.

n Simply type the name of the polymer, ‘Polydiketoenamine’ or ‘PDK’, into a search engine, and see the numerous jubiliations about this *next-generation plastic* that can be recycled indefinitely.

polymer exists. Besides, even if commercially available one day, it would be but one material among many. What was the situation more than twenty years ago⁷² has not changed since. Until further notice, “*recycled plastics are low-value commodities due to residual impurities and the degradation of polymer properties with each cycle of re-use*”⁷³. As still recently recognised by the industry, there is a gap between plastic waste and recycled materials because “*in all industrial processes, output quantity is smaller than input quantity due to impurities and residues*”⁷⁴. Examples of impurities and residues are moisture, organics (e.g. water, milk, yoghurt), textiles, composites, paper, adhesive, metals and plastic residues discarded from the recycling process (e.g. foils)⁷⁵. This degradation of plastic materials each time they are reprocessed, means that new raw material will be needed with each recycling⁷⁶. This is also the case for PET. PET recycling is the best plastic recycling we have today, but it concerns less than 2% of all the plastic consumed⁷⁷. And, while ‘a simple and repeatable process’ may be used to produce PET bottles from recycled material⁷⁸, also here degradation takes place due to reprocessing⁷⁹ and contaminations of recycled PET (rPET)⁸⁰. Besides, most PET is not closed-loop recycled into new bottles but downcycled in textile applications and thermoforming sheets⁸¹. Today, in Europe, on average PET bottles contain only 17% rPET content⁸².

Thus, unlike aluminium or glass, which can be recycled continuously without quality loss⁸³ (and of course, glass bottles could simply be reused), plastic cannot. And besides, even when a material could be recycled infinitely without loss, any actual increase in consumption still implies the need for additional virgin material^o. This is true for aluminium^p, as well as for plastics.

Adding to this, there is the fact that plastic is not one material, but an extensive family of different polymers, each with specific characteristics⁸⁴. Many plastic products are composed of more than one of these materials, making them pretty much impossible to recycle⁸⁵. Besides, they are often integrated with other materials such as paper in the case of disposable beverage cups (see 1.3.1 below), again very much hindering their recycling. Furthermore, these plastics are combined with countless additives⁸⁶, essential to make them processable and to assure their end-use properties⁸⁷. Thus, a plastic material, randomly chosen, will contain about 20 additives⁸⁸. Yet, while health hazardous from endocrine disruptors like BPA and phthalates are scientifically well established, little is known about possible hazardous properties of many additives^q. This complicates plastic recycling even further⁸⁹.

Given all this, and considering that for instance the World Economic Forum forecasts plastic production “**to double again in 20 years and almost quadruple by 2050**”⁹⁰, and that “*even if there is still potential for growth in e.g. bottle recycling in a number of countries, the fact that countries with long experience have not achieved more suggests that increasing recycling rates will be increasingly difficult*”⁹¹ - as the industry itself acknowledges - it is clear that **just more recycling will not solve one of the pressing challenges of our time**⁹².

The ‘new’ solution of chemical recycling – today increasingly referred to as ‘chemical upcycling’^r – will not change this. Promoted by the plastic industry and their allies as “*sustainable solutions to overcome the current challenges of recycling processes [which] protect nature by transforming plastic waste into a valuable resources (sic.)*”⁹³, allowing to “*endlessly recycle plastic waste by transforming it back into its components or other products*”⁹⁴, it concerns a questionable concept. First, according to certain authors, technically speaking, ‘chemical recycling’ and ‘feedstock recycling’ are not the same. Where “[c]hemical recycling implies a change of the chemical structure of the material, but in such a way that the resulting chemicals can be used to produce the original material again”⁹⁵, “[f]eedstock recycling implies a change of the chemical structure of the material, but in such a way that the resulting chemicals are used for another purpose than producing the original material”⁹⁶. And yet, these concepts are often

o In this regard, it has been estimated that beyond 1% annual growth in consumption of a material, even the recycling of almost all waste has only a derisory effect on the sustainability of its resources. See: Grosse F. (2014), *Les limites du recyclage dans un contexte de demande croissante de matières premières. Annales des Mines - Responsabilité et environnement*, 4 (76).

p In 1980 world-wide secondary aluminium (i.e., recycled) was only 5 Mt, compared to almost 27 Mt in 2015; but in the same interval, primary aluminium (i.e., from raw material) went up from 15 Mt to 58 Mt; cf. Aluminium for Future Generations, [Industry Structure](#).

q Additives used in the past (e.g., BPA, certain phthalates, flame retardants...) have been phased out because of their hazardousness, yet this doesn’t mean that the possible environmental or human health hazards of those currently used are well-known.

r The latest buzzword in the chemical recycling realm now is ‘Chemical upcycling’. Indicatively, in November 2022, a Google scholar search for “chemical upcycling” gives 425 hits, 389 of which are published since 2018. Yet, in what way it is any different from the decades old promise of chemical recycling is not clear. On closer look, it seems but old wine in new bottles, trying to make us forget how so far, the promise of chemical recycling has not at all been lived up to.

used interchangeably, hence creating confusion⁵. Furthermore, it may well be touted that chemical recycling could eventually reprocess plastic waste into new plastic materials⁹⁷ and could make plastics production circular⁹⁸, in reality, even the industry recognises that these *“technologies are still in the early stages of industry scale use⁹⁹”*. Considering that *“efforts to chemically recycle plastics commercially can be traced back to at least the 1970s [...] [but that] [s]ince then, and outside of some current media claims, the concept appears to have stagnated in terms of full-scale practical applications¹⁰⁰”*, the promise of these so-called ‘advanced recycling’ technologies to add anything useful to solving the plastic crisis, is revealed to be nothing but a myth¹⁰¹. **After fifty years of announcing such technologies¹⁰²**, *“the most common example of feedstock recycling in Europe is currently the use of plastic waste in blast furnace¹⁰³”*. Hence, we should indeed call things by their name, and recognise that they are not about recycling but about recovery¹⁰⁴; two things that are not the same¹⁰⁵.

1.2.2.2 ... But, the industry’s favourite fix for decades

Notwithstanding these numerous limits and the fact that only 9% of all plastic produced since 1950 has been recycled¹⁰⁶, the idea that we will fix everything with more recycling has been going around for decades. As such, it has been heavily promoted by the plastic industry.

THE AMERICAN RECYCLING TALE

By the end of the 1980s, exacerbated by accelerating plastic waste and corresponding environmental pollution, a strong movement in the U.S. demanded plastic bans and stricter regulation. In a response, the plastic industry created the *Council for Solid Waste Solutions*¹⁰⁷. Their solution: Recycling. Or rather, the collection of plastic waste with the promise that it will be recycled. As their then vice-president, declares in 1992, *“[t]he most effective way to achieve a 180 degree reversal in consumers’ collective attitude towards plastic, is by providing them with the means to toss their plastics in a recycling bin¹⁰⁸”*. Or, as the head of the Society of the Plastics industry in the 1980’s and ‘90s puts it, *“if the public thinks that recycling is working, then they are not going to be as concerned about the environment¹⁰⁹”*. On this basis, through lobbying and communication this council *“[i]n virtually all cases, [has] been able to change ban legislation to recycling legislation¹¹⁰”* and now *“the consumer and the politician, both, are demanding recycling¹¹¹”*. If communication and lobbying did not work, the industry did not hesitate to challenge legislative bans in court¹¹², just as they did 30 years later regarding Bisphenol A (BPA) (see 2.3 below). Regarding actual recycling, we are assured that *“[the Council for Solid Waste Solutions] announced the Blueprint for Plastics Recycling, a market-driven action plan that will enable us to help recycle 25 percent of all plastic bottles and containers by 1995¹¹³”*. They never realised this objective. Based on data provided by the United States Environmental Protection Agency (EPA)¹¹⁴ plastic waste generation in the country more than doubled from 17.1 million U.S tons in 1990 to 35.7 million U.S. tons in 2018. Over 14.5 million tons thereof exist of disposable containers and packaging. While the recycling rate for PET bottles was 29.1% in 2018¹¹⁵ and 29.3% for HDPE (High-density polyethylene) bottles, overall, only 3 million tons, that is 8.7% of all this plastic is recycled. In practice, today, six times more plastic waste in the US is incinerated than recycled¹¹⁶, and the news reports about American plastic waste transport to developing nations¹¹⁷ and the country’s broken plastic recycling system¹¹⁸ are countless. But then again, **the industry evidently knew that they would never reach these recycling goals**. Publicly promoting recycling; privately they have long expressed doubt it was ever going to happen on a broad scale¹¹⁹. In 1973, an internal document of the *Society of the Plastics industry*^t cautioned that *“the techniques of cleaning and separating the mixed plastics in major kinds of resins has not been developed for large scale economic application¹²⁰”*; and a report from the same year states that *“there are no effective market mechanisms for trade in contaminated, mixed plastics¹²¹”*. This did not change, and the vice-president of the Society of the Plastics Industry from 1978 to 2001 admits, *“there was never an enthusiastic belief that recycling was ultimately going to work in a significant way¹²²”*.

s Note also that terminology is not used uniformly, with for instance different understandings in Europe or North America; cf. Chemical Recycling Europe, [10 Questions and Answers to Better Understand Chemical Recycling](#).

t Founded in 1937, they are now the Plastics Industry Association; cf. Plastics Industry Association, [About us](#).

Still today, the industry beats the same drum and continues to assure the public that they will take care of things through more recycling. In this regard, also the Circular Economy for plastics nowadays heavily promoted by – especially the European – plastic industry appears to be nothing but a new buzzword to sell old wine in new bottles^u. As an answer to the question “*what [we] can do to reduce marine litter*”, we are told that “*Europe should turn the current rise in environmental awareness into an opportunity to encourage consumers to fully endorse a culture of separate collection and recycling*”¹²³. And, we are assured that “*growing environmental awareness and the increasing involvement of commercial and private consumers in separate waste collection systems will help achieve higher waste recycling targets*”¹²⁴. Furthermore, we are promised that the industry’s “*commitment is to ensure high rates of re-use and recycling with the ambition to reach 60% re-use and recycling of plastics packaging by 2030*”¹²⁵. However, it is unclear how they think to square all this with their own recognition that “[p]lastic waste is one of the most complex material mixtures from a recycling perspective”¹²⁶, and the fact that their own most recent data put plastic packing recycling at but 42%¹²⁷. How they will realise this very considerable increase, the public is not told.

1.3 PLASTIC WASTE IN SWITZERLAND, AND HOW IT IS NOT TAKEN CARE OF

Notably, the 2010 overview mentioned before (see 1.1 above) presents the Swiss plastic situation as if it is nicely closed. Comparing the numbers, there seems to be no *leakage*. Everything that goes in, somehow flows back or is taken care of otherwise. Yet, over the last years, increasing evidence came to contradict such a *clean* vision. And, by now it should be clear that **Switzerland is not less than other countries affected by the plastic scourge**¹²⁸.

1.3.1 Disposable plastic: a litter problem does exist

A common image of Switzerland^v is that of a country where plastic is well managed and has little impact on the environment¹²⁹; a country better placed than many EU countries to achieve circularity¹³⁰; *a model student*¹³¹, or even a *world leader*¹³² in recycling^w, and a place where plastic leakage is only about 0.3%¹³³.

As to the first two claims, the foregoing discussion about recycling vs incineration (see 1.2.1 above) makes clear that this jubilant mood is at least *somewhat misguided*. With respect to the last statement, it is not clear on what this is based, or what it refers to. Declarations as if problems related to disposable plastics would primarily be something of “*developing and emerging countries, which often do not have a functioning waste disposal system [...] lead[ing] to the pollution of entire regions and the oceans*”¹³⁴ (translated from German – *tfG*), as the Swiss Federal Council maintains^x – are at best complacent, at worst self-deceptive and mendacious. Not only do they ignore those countries’ own low plastic consumption (see 1.1 above) **and the massive amounts of plastic waste exported to them by high-consuming western countries**^{135,y}, but also does it hide the fact that Switzerland too indeed has problems related to the use of disposable, single-use plastics.

“ We can permit ourselves to litter, because we are rich enough to clean it up.

u Note in this regard for instance that the first time that the word ‘*circular[...]*’ appears in a Plastics Europe publication is at the end 2014 (Plastics Europe (2014), *The Plastics Industry: A strategic partner for economic recovery and sustainable growth in Europe. Manifesto on the competitiveness of the plastics industry*, p. 13), and the first time that the circular economy concept is actually (briefly) elaborated upon is in a document from 2017. (Plastics Europe (2017), *Styrene a world of possibilities*, p. 8 of 9). Since then, it has become the central buzzword of the industry association’s communication strategy.

v This common image of Switzerland as a clean country seems to be around quite a while; cf. SRF (11.10.1969), *Antenne- Aktion Weg mit dem Dreck*, 05’06”.

w Note again that percentages say little about actual amounts. Compared to other European countries (three neighbours + BE and ES), Switzerland has comparable recycling rates for municipal waste, both for *material recycling* and *recycling as composting and digestion*. Yet, given the high overall municipal waste generation, the amount of non-materially recycled waste is highest in Switzerland. And considering both material recycling and composting and digestion, it is still the second highest after Spain (see Annex 1 for a detailed overview).

x Note that while the answer to this parliamentary motion may date from about 10 years ago, the position of the Federal Council seems not to have changed since. Also in its recently published report, Der Bundesrat (Bern, 23. September 2022), *op cit.*, p. 28, we again can read that “[t]he main cause of marine pollution is a lack of or inadequate waste management, mainly in Asia and Africa” (*tfG*). By now, this blame-shifting has been debunked since long. Even the Ocean Conservancy which largely contributed to popularising this vision has by now publicly apologised for their too narrow focus on developing countries as the one to blame for ocean pollution; cf. Ocean Conservancy (10.07.2022), *Stemming the Tide Statement of Accountability*.

y While data from the Swiss Federal Customs Administration (see Swiss Impex, *Results table* – 3915 – Waste, parings and scrap of plastic) indeed show how almost the entire share of the country’s plastic waste export goes to the EU, it is difficult to know what happens there with it.

It is true that Swiss public spaces seem clean compared to other countries. But of course, we pay for that. **We can permit ourselves to litter, because we are rich enough to clean it up.** Public authorities provide considerable resources to do so. Each year, a city like Lausanne devotes thousands of hours and spends CHF16 million, i.e., CHF110 per inhabitant, to clean its public space of about 1,700 tonnes of litter¹³⁶. For the whole country costs are estimated at CHF200 million annually; 150 for municipalities, 50 for public transport¹³⁷. As the city of Lausanne points out, “*this is money that could be invested in security, childhood, mobility, ...*”¹³⁸.

Besides, **we should not be blinded by too much self-praise.** It is not as if there is no litter ending up in our environment. As for the first time elaborately revealed by the Swiss Litter Report in 2018, the “*litter density measured in Switzerland is in the range of comparable international studies*”¹³⁹, strongly shaking the myth of a clean Switzerland¹⁴⁰. The average litter density was 67 items per 100m²; 65.4% of which is plastic¹⁴¹. Commissioned by the Federal Office for the Environment, the exercise was repeated in 2020-2021. This survey showed that there was no statistically measurable change on the national scale since¹⁴². Littering remains invariably high. Notably, considering different sweeping efficiencies, most of the remaining litter tends to be found along roadsides and in natural environments, compared to residential areas¹⁴³. In this regard it is also important not to reduce the litter issue to a shoreline and water-body problem. According to EMPA (the Swiss Federal Laboratories for Materials Science and Technology), 100 tonnes of macroplastics (i.e., pieces larger than 0.5 cm) are emitted to waters each year in Switzerland, compared to 4,400 tonnes deposited to soils. For both aquatic and terrestrial environments, the leading emission pathway is littering of consumer packaging¹⁴⁴. In this perspective, **limiting these disposable plastics does deserve to be looked at as a priority to reduce the exposure of the environment to plastics**¹⁴⁵.

In this regard, special attention should go to the increasing segment of take-away packaging. Reinforced by the Covid-19 pandemic, the tendency for more and more take-aways was already underway before, and is expected to endure¹⁴⁶. This creates an important stream of (plastic) packaging¹⁴⁷, and raises questions about the health impact of many substances used in this packaging¹⁴⁸.

Emblematic in this regard is the so-called coffee-to-go cup. These cups exist for an important share of virgin paper, but also contain plastic (inside coating, lid)¹⁴⁹. This makes their recycling challenging and therefore they are not actually widely recycled¹⁵⁰. A study carried out by the consultancy firm Eunomia^z for The Norwegian Environment Agency for instance puts the recycling rate of single use beverage cups and lids in the country at only 3%¹⁵¹.

Only introduced on the European continent in the 1990s¹⁵², the first coffee-to-go in Germany was sold in 1996 and the first American style coffee shop in the country opened in 1998¹⁵³. Also in Switzerland, they were largely unknown until some 20 years ago¹⁵⁴. And yet, today we consume a staggering amount of them. Wild, and not always substantiated claims circulate about how much take-away cups are used in Switzerland¹⁵⁵, putting the numbers as high as 8 million per day¹⁵⁶, i.e., 2.92 billion cups per year¹⁵⁷. However, the German Environment Agency carried out a study in 2019, estimating the consumption of hot drinks in disposable cups in the country at 2.8 billion per year of which about 1.1-1.2 billion are take-away¹⁵⁸. In addition to the cups, 1.3 billion plastic lids are used¹⁵⁹. This amounts to 28,000 tonnes of waste; 18,000 tonnes of paper/ carton and 8,900 tonnes of plastic¹⁶⁰. All this does not include take-away cups for cold drinks because it proved very difficult to obtain reliable data on these¹⁶¹. Simply in proportion to population this brings an estimated 287.5 million disposable hot beverage cups per year for Switzerland, of which about 112.9-123.3 million as take-away. That is about 2,800 tonnes of waste. The validity of these numbers is corroborated by findings from a recent Danish study, estimating that Danes use around 130 million single use cups each year for coffee alone¹⁶². No concrete data seem to exist about how much beverage cups ends up in the environment every year, but the Swiss litter report ranks cups and lids 17th among the 45 categories of most found plastic waste items¹⁶³.

While **it should be clear from the above that pollution caused by discarded plastic items is not to be underestimated;** it is far from the only problem we are facing. Not only is there the continuous flood of discarded cigarette butts – resulting into an unexpected but considerable source of plastic pollution (see 1.3.2 below) – but also is there the invisible but immense problem of microplastics (MP) released during use (see 1.4 below).

z <https://www.eunomia.co.uk/>

1.3.2 Littered cigarette butts: a further source of plastic pollution

With up to two-thirds of every smoked cigarette discarded onto the ground¹⁶⁴, cigarette butts are everywhere. For 2012 it has been estimated that worldwide some 967 million smokers consumed approximately 6.25 trillion cigarettes¹⁶⁵; that is about 4.17 trillion butts tossed on the ground for that year alone.

As a result, **cigarette butts are by far the largest single type of litter by count**¹⁶⁶. Since the 1980s they have consistently comprised 30–40% of all items picked up in annual international coastal and urban clean-ups¹⁶⁷, and according to the *Ocean Conservancy*, cigarette butts are the number one item collected in shoreline clean-ups worldwide, with about 2.4 million collected during the international coastal clean-up day in 2017¹⁶⁸.

Comparable results are found for Europe. Of the 693,259 items collected through the Marine Litter Watch initiative between 2014-2017, 18% were cigarette butts¹⁶⁹. Thus, they are the second most found single-use plastic item on beaches in the EU¹⁷⁰.

Also in Switzerland cigarette butts are the most littered item¹⁷¹. As part of the stop2drop campaign in March 2021, school classes from Switzerland and Liechtenstein collected 958,181 cigarette butts in two weeks^{172, aa}. And, research carried out in Geneva has counted up to 476,000 cigarette butts covering the city's streets¹⁷³. Extrapolated to the whole country based on its population, this adds up to more than 20 million cigarette butts lying around daily on Swiss streets and roads. From there, they leak away and accumulate into the further environment.

Obviously, all these cigarette butts create a huge amount of waste. Considering the number of cigarette butts tossed away, and given that the weight of 20 cigarette filters is 3.4g, the estimated discarded waste from global cigarette consumption in 2014 could be anywhere between **340 and 680 tonnes**. This does not include the weight of remnant tobacco and other by-products of the discarded waste¹⁷⁴.

However, visible waste is far from cigarette butts' only - or even main concern. First of all, tobacco product waste contains **over 7,000 toxic chemicals**, including known human carcinogens¹⁷⁵. Furthermore, **cigarette butts are not biodegradable**. A cigarette filter, i.e., the main part of what is thrown away is made of a type of plasticised cellulose acetate¹⁷⁶, and contains numerous harmful chemicals¹⁷⁷. **Littered butts and their residues accumulate in the environment where they are an important source of microplastic litter**¹⁷⁸ and have devastating effects on both marine and freshwater environments¹⁷⁹. In this regard, research from 2014 on levels of nicotine in urban water showed that one cigarette butt is enough to contaminate 1,000 litres of water with concentrations having toxic effects on water organisms¹⁸⁰, and a study from 2011 found that 1 cigarette butt per litre water in fresh- and saltwater killed half of the fish in the basin after 96 hours¹⁸¹. Notably, terrestrial environments are not spared either, as cigarette butts have been found to have adverse impacts on soils and flora¹⁸².

1.4 MICROPLASTICS: AN INVISIBLE OIL SPILL¹⁸³; ALSO IN SWITZERLAND

As explained, the litter problem should not be overlooked, and must be taken care of. Yet, a growing amount of research confronts us with a further, much more pervasive source of plastic pollution, namely the continuous release of microplastics by products that are made from or do contain plastic¹⁸⁴.

Being not directly visible, microplastic pollution cannot be dealt with by *traditional* waste management. **It essentially does not result from civic misconduct or mismanaged waste, but follows from the normal use of plastic goods and happens essentially involuntarily and with the user unaware**^{ab}. As a result, microplastic is accumulating in

aa It is good to keep in mind that more than 50 years ago, schoolkids participated in the same kind of initiatives; that is cleaning up the mess from adults. Cf. SRF (06.06.1969), *Säuberung Petersinsel*; SRF (10.11.1969), *Aktion Weg mit dem Dreck*.

ab In this regard, a distinction is made between so-called *primary*, and *secondary microplastics*. While different interpretations exist about these concepts, we follow Boucher & Friot (2017), *Primary Microplastics in the Oceans – IUCN*, p. 5, who distinguish between *primary microplastics* directly entering the environment as such, and *secondary microplastics* resulting from the breakdown of larger pieces of plastic waste and debris.

both oceanic¹⁸⁵ and freshwater¹⁸⁶ environments, as well as terrestrial ecosystems¹⁸⁷. It has also been observed in the atmosphere¹⁸⁸, through which it has been transported to remote areas¹⁸⁹.

Obviously, Switzerland is not protected from this. Studies have found microplastics in Swiss lakes where particle concentrations are of similar magnitude to most marine plastic pollution data¹⁹⁰, or in the Rhine, where an average of 238,887 particles per km² have been measured in Basel¹⁹¹. But they were also found high in the Alps¹⁹² and in the floodplains in nature reserves¹⁹³. Evidently, we humans are exposed to this increasing abundance of microplastics. They are in the air we breathe¹⁹⁴ and the food we eat¹⁹⁵. Consequently, they are also in our bodies, where by now, they have been observed in our stool¹⁹⁶, blood¹⁹⁷, lungs¹⁹⁸ and placenta¹⁹⁹. Thus, they are affecting our health in various possible ways²⁰⁰.

While many sources of primary microplastics do exist²⁰¹, at least three can be distinguished which in a highly mobile and consumerist Swiss society have particular relevance. That is, although they are not Switzerland-specific issues, the Swiss life-style makes them of particular importance to the country. These are tyre wear due to abrasion during driving, synthetic fibre release, and intentionally-added microplastics.

1.4.1 Tyre wear

Notwithstanding that the tyre manufacturing industry tries to tell otherwise²⁰², increasing evidence²⁰³ points to tyre abrasion as a major source of plastic pollution²⁰⁴. While we could easily think of tyres as being made from rubber, they are mainly composed of a mix of synthetic materials²⁰⁵ including up to 60% of synthetic rubber²⁰⁶; a material which indeed is plastic²⁰⁷. According to the *Fraunhofer Institute*, a common car tyre loses around 1 to 1.5 kg of material over its lifetime of about 50,000 km²⁰⁸. Thus, an average car has an overall tyre abrasion of 4 to 6 kg over 50,000 km. Similar estimates have been made by *Eunomia*, citing a loss of 0.10 g/vehicle km (Vkm) for passenger cars (= 5 kg/50,000 Vkm)²⁰⁹. Based on this, they come to an annual release in Europe of 554,314 tonnes of tyre wear (all vehicle types included)²¹⁰. For Switzerland, a study carried out for the Federal office for the Environment in 2020, estimates that around 13,540 tonnes of tyre wear per year are produced on Swiss roads.

Spread by wind or washed off the road by rain²¹¹, a large part of this **tyre wear is not retained in any drainage system, and accumulates in the environment**. As a result, it is estimated that about 28% of microplastics in the oceans stems from tyres; hence making it the second largest source of microplastic pollution after synthetic textiles²¹² (see 1.4.2 below). And, suspected tyre wear particles have been found in various fish species²¹³, and their impact on aquatic life reveals to be devastating²¹⁴.

Also in Switzerland, tyre wear appears to be a key source of plastic pollution. From the estimated 14,000 tonnes of plastic ending up in the Swiss environment every year, about 8,900 tonnes (5,300 tonnes pure microplastic) come from tyre abrasion²¹⁵, of which 3,430 tonnes end up in surface waters, and 5,480 tonnes in the soil²¹⁶. And for instance, of an estimated 50 tonnes (55 tonnes according to other estimates²¹⁷) of microplastics entering Lake Geneva every year, about 30 tonnes comes from tyre wear²¹⁸.

Worryingly, without decisive action, the problem can be expected to increase. Tyre wear relates to vehicle weigh, with heavier vehicles emitting more wear per km²¹⁹. Thus, driving lighter cars could help alleviate the burden²²⁰. However, contrary to what the plastic industry might wish us to believe^{fac} trends are going the other way. The weight of average cars being sold in both the US and Japan, as well as the European market has gone up steadily over the last decades²²¹. Switzerland is no exception to this²²². This not only challenges CO₂ emission reduction targets²²³, but obviously also complicates efforts to decrease tyre wear pollution. As currently electric cars are heavier than equivalent gasoline vehicles²²⁴, they do not solve the tyre wear problem²²⁵.

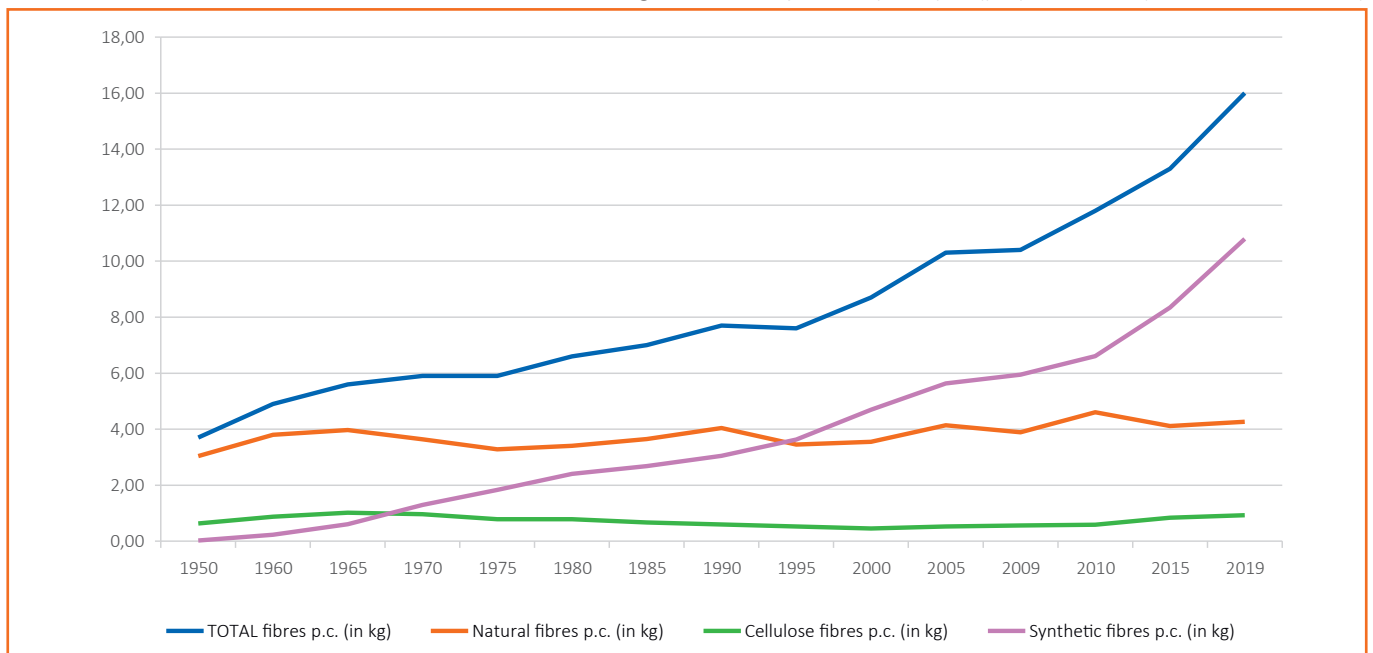
ac Repeatedly, Plastics Europe a. o. alludes to the connection between (increased) use of plastic materials in the production of cars and the reduction of fuel and emissions; i.a. Plastics Europe (2010), *Plastics' contribution to climate protection*, p. 6; Plastics Europe (2011), *Plastics - the Facts 2011*, p. 16; Plastics Europe (2014), *op cit.*, p. 6. Obviously, they never actually say that cars are getting lighter. Yet, by the well-chosen (...) way they formulate that plastic, compared to "alternative materials" (2010, p. 6) could contribute to lighter cars, or how "plastics play an increasingly critical role in the development of low emission and zero-emission cars of the future" (2011, p. 16), they certainly search to make the casual reader believe so.

1.4.2 Synthetic fibres

According to the *Fiber Year*, in 1950, the world used 9.40 Mt of fibres (3.7 kg/capita). 70,000 tonnes (0.03 kg/ capita - 0.74%) were synthetic. In 2000, this had gone up to 52.64 Mt (8.70 kg/ capita), of which 28.39 Mt (4.69 kg/ capita- 53.93%) synthetic²²⁶. By 2019, this further increased. That year, world consumption of fibres reached 120 Mt (16 kg/ capita); with 81 Mt (10.80 kg/ capita – 67.50%) synthetic²²⁷. **Today, about two-thirds of all textile items are made from synthetic materials such as polyester, polyamide and acrylic²²⁸.**

Fibre production shows how the industry’s claims that plastics are “*saving more resources than they use²²⁹*” and that “*over the last decades, we’ve seen plastics replacing other materials (wood, glass, metal, leather, etc.) in countless applications [...]²³⁰*” are void. **In absolute terms, natural fibres have not been replaced.** Notwithstanding the strong increase in synthetic fibres, the production of natural fibres too has considerably increased since 1950: from about 7.7 Mt in 1950 to 32 Mt in 2019, with an increase per capita from 3.04 kg in 1950 (of the overall 3.7 kg/capita used that year) to 4.27 kg in 2019²³¹ (see Figure 2).

Figure 2 – World fibre use per capita (p.c.) 1950-2019 (source: *The Fibre Year*)



Associated with accelerating fibre use, we see an equally accelerating fashion production. **In the past decade, the number of garments purchased per consumer has more than doubled²³²**, and it is projected that overall apparel consumption will rise by 63% to 102 million tons in 2030²³³. Besides, **over the last 15 years, clothing use – i.e., the number of times a garment is used before being discarded – has declined by almost 40%²³⁴**. The devastating environmental and social impacts of this clothing consumption are by now well known about and can no longer be ignored²³⁵.

In line with the overall trend towards synthetic fibres, “*this skyrocketing production of clothes is enabled by cheap synthetic fibres, mostly polyester, which is found in over half of all textiles produced²³⁶*”; **with about 34% of clothing sales in Europe being fully synthetic today²³⁷**. If Viscose is included, this amounts to 45% of clothing made of man-made fibres²³⁸.

While all fibres shed, natural fibres^{ad} biodegrade, which is generally considered to reduce their environmental threat²³⁹. As synthetic materials do not, expanding textile consumption has led to a growing amount of plastic micro- and nanofibers in ecosystems all over the world²⁴⁰. They are estimated to constitute up to 35% of primary microplastics

ad Obviously, they should be non-treated, organic materials. Also, their increasing consumption too creates various environmental problems, outside of the scope of this report.

in marine environments and a major proportion of microplastics on coastal shorelines; and to persist for decades in soils treated with sludge from wastewater treatment plants (WWTP)²⁴¹ which according to recent research spreads between 31,000 and 42,000 tonnes of MP on European agricultural soils annually²⁴². Microplastic fibres have been found in various marine species with multiple negative effects²⁴³. Humans, are exposed to them by their consumption of seafood²⁴⁴, and through direct inhalation, which may damage lung cells²⁴⁵.

Microfibres come from abrasion and shedding of synthetic textiles during washing, the result of which is discharged into wastewater and potentially ends up in the ocean²⁴⁶. Thus, **an estimated 5.6 Mt of synthetic microfibers have been emitted from apparel washing between 1950 and 2016²⁴⁷. Half of this amount was emitted during the last decade²⁴⁸**. However, they also emerge during manufacturing and production²⁴⁹, mechanical drying²⁵⁰, and by simply wearing the garments. This last source is possibly of a similar order of magnitude to that released to wastewater by laundering²⁵¹.

Regarding the first source (the washing of clothes), a tentative estimation can be made for Switzerland based on the 2018 *Eunomia* study cited before. For Europe (EU + NO + CH), the amount of microplastics from washing of synthetic clothing is estimated at 18,430 to 46,175 tonnes per year²⁵². Comparing the total number of washes per year in Europe (37,541,304,975) with those for Switzerland (590,146,920)²⁵³, about 290 to 726 tonnes of microfibres are emitted into Swiss wastewater every year. Notice, however, how another assessment arrives at only 80 tonnes of synthetic fibres from clothing and household textiles released into wastewater through washing, of which around 5 tonnes would effectively end up in surface water²⁵⁴. These considerable differences show how our knowledge and understanding of microfibre pollution are still subject to much interpretation and debate. Yet, while more research might help improve our understanding, **we should guard ourselves not to use this ‘science-is-not-yet-in-argument’ to delay decisive actions about a problem which as such does undeniably exist, regardless of its exact scale.**

1.4.3 Intentionally added microplastics

1.4.3.1 Plastics in cosmetics: microbeads in solid form...

Over the last years, increasing attention has gone to microbeads in personal care and cosmetic products (PCCP). They are present in a wide range of products such as toothpaste, shower gel, shampoo, eye shadow, deodorant, blush powders, makeup foundation, skin creams, hairspray, nail polish, liquid makeup, mascara, shaving cream, baby products, facial cleansers, bubble bath, lotions, hair colouring, insect repellents or sunscreen²⁵⁵. They are also used as glitters²⁵⁶; and in hand sanitisers and gels widely used to keep the coronavirus in check²⁵⁷. Being deliberately added to those products²⁵⁸, their leakage may certainly be defined as intentional²⁵⁹; at least for what concerns their producer. Similar to synthetic microfibres they enter the environment through wastewater²⁶⁰, of which even the most advanced WWTP does not filter out all micropollutants (see 5.3.3 below). Available research finds microbeads from PCCP to be dominant among the microplastics still present in WWTP effluent (i.e., what is released into the environment after final treatment)²⁶¹.

Overall data on microplastics are rough estimates, showing huge differences between lower- and upper boundaries. So are those on specific sources. One of the few comprehensive studies on the matter, carried out by *Eunomia* in 2016, estimates the annual quantities of microplastics emitted in Europe to lie between 80,000 and 219,000 tonnes, of which 2,461 to 8,627 tonnes are considered to come from PCCP²⁶². For Switzerland, an estimated 73 tonnes of microplastics from PCCP are released into wastewater annually, of which around 2.6 tonnes ultimately end up in the environment²⁶³.

The microbead problem is manageable, and if there is a will to do so, could be stopped without delay. It is directly linked to a specific production mode for a specific set of products, even if this set of products may be considerable in number. Thus, the problem could be solved by technical fits for the products in question²⁶⁴. These fits do exist. From an environmental point of view, multiple viable alternatives indeed perform uniformly better than plastic microbeads²⁶⁵. In that sense, the challenge is comparable to the phasing out of ozone depleting chlorofluorocarbons (CFCs) following the 1987 Montreal Protocol, which has led to a gradual recovery of ozone levels since the beginning of the 2000s²⁶⁶.

Arguably, this intelligibility of the problem and its closeness to everyone's daily life is why PCCP have become a focal point for actions against microplastics²⁶⁷. Hence, microbeads can function as a trailblazer for increasing awareness about the (micro)plastic problem overall.

In this regard, **complaints by the PCCP industry about how microbeads are a comparably small problem²⁶⁸ and therefore the focus on them is 'extremely disproportionate'²⁶⁹, are misplaced.** It is certainly true that microplastics are also added to numerous other products²⁷⁰, notably paints²⁷¹ or agricultural pesticides and fertilisers²⁷². Yet, one thing does not exclude the other. Microplastics in other products have to be taken care of too and, for instance, upcoming EU legislation is intended to do so (see 2.4.1.2 below), but this does not absolve PCCP producers. Given that their products are close to the public precisely because they are intended (and promoted so) for continuous use by this public in their daily lives, it is understandable and justified that they are attracting a large share of the attention. Microbeads have to be eradicated because they easily can be, if so desired.

While considerable research has been dedicated to microbeads, and much energy has been put into banning them like in The Netherlands, Ireland, Italy, Sweden, UK, Australia, Canada, Korea, New Zealand, and the US²⁷³, very little attention has gone to the origin of the problem. Nonetheless, based on the scarce information on the matter²⁷⁴, we may conclude that it is a recent problem. While the earliest reference to plastics being used as an ingredient in a PCCP comes from a patent filed in the US in 1959²⁷⁵, and the earliest reference to plastics being used as a form of abrasive compound in skin cleaning products is found in a US patent from 1972²⁷⁶, overall, **microbeads were not regularly used commercially until the 1990s** when manufacturers began adding them to hundreds of personal care products, including face washes, toothpastes and exfoliators, for their abrasive properties²⁷⁷. Prior to this widespread use of synthetic microbeads, manufacturers used naturally abrasive materials including cocoa beans, ground almonds, ground apricot pits, sea salt, ground pumice and oatmeal, which biodegrade when released in the environment²⁷⁸. Of course, those who could know since when, which and how much microbeads are used, namely the PCCP industry, seem not willing to share such information^{ae}.

Considering how recently microbeads were added to PCCP, the cosmetics industry seems quite cynical in how they are now touting *their efforts* to replace microbeads, and how much they do so *voluntarily* and *proactively*²⁷⁹. BASF for instance, in 2018, launched “a new biodegradable and natural microbead [...] **mainly** derived from natural and renewable sources [...]” as an alternative for “**traditional plastic microbeads**”; something they present as a “challenge”²⁸⁰. Or, L'Oréal New-Zealand, following a ban on microbeads in the country, let us know that they already “had swapped out plastic microbeads for mineral-based ingredients, such as clays and the powder of fruit kernels, in its wash-off cleansing and exfoliating products”²⁸¹. Of course, note that L'Oréal did so just because of “**possible concerns about the environmental impact of microbeads [...]**”, and notwithstanding “*phasing out of an ingredient is always a complex process*”²⁸². Beiersdorf on the other hand, assures that their Nivea products no longer contain peeling-particles from polyethylene (PE)²⁸³; yet this says nothing about other microplastics. Although PE is the predominant material used for microbeads²⁸⁴, there are many others as well^{af}. Cosmetics Europe, finally, declares that the 4,360 tonnes of microbeads *used* in wash-off cosmetic products across Europe in 2012, decreased with 97.6% by 2017; something they underscore the industry did voluntarily²⁸⁵. Not only does this concern only half of the totality of microplastics used in cosmetic products²⁸⁶, but also does the underlying definition they use potentially exclude certain microplastics used in cosmetics²⁸⁷. More generally, **notwithstanding all the promises, still many cosmetic products do contain microplastics**²⁸⁸. And, of course, the same industry which makes *nice* promises about their voluntary initiatives simultaneously entertains a website about the *science & safety of cosmetics* on which they among others defend the use of polymers in PCCP²⁸⁹.

Of course, producers may argue that it is challenging and complex to replace microplastics from their products²⁹⁰. Yet, it is they who put them there in the first place, and this, as noted, not long ago. They did so, not because microbeads

ae The Dutch consumer program Kassa, for instance, wanted more information about the use of microplastics – how long the microplastics have been used, where they come from and where they are produced – but did not receive any concrete answer, neither from L'Oréal, nor from Procter & Gamble. Cf. BNNVara – Kassa (29.01.2013), [Zijn microplastics in cosmetica schadelijk?](#)

af Publicly available data about this vary considerably. According to Beat The Microbead, [Guide to Microplastics](#), “more than 500 microplastic ingredients are widely used in PCCP”; while according to Ethical Brand Directory, [Microbeads in beauty products](#), “there are more than 60 different microplastic ingredients currently used in cosmetics”. Then again, this second number seems to be outdated (see Beat the Microbead, [Plastics in Cosmetic is a Design Error](#) – Guide to Microplastics). But, anyway, even if depending on definitions, the exact number might vary, point is that PE is certainly not the only microplastic used in PCCP.

were intrinsically better than the alternatives²⁹¹, but because they are much cheaper to mass-produce²⁹². And, **they did so despite early warnings that “given their persistence in the environment, accumulation could occur should these plastic scrubber-containing cleaners become more widely used in the marketplace²⁹³”** (1991). It was known that “[this material] is an unnecessary addition to the plastic microlitter whose impact on marine ecosystems and larger oceanic processes, and our understanding of them, can not be accurately evaluated²⁹⁴” (1996), and indeed, “on a common sense basis one would opt for minimizing unnecessary discharge of plastics in the environment²⁹⁵” (1991). The industry did not listen.

1.4.3.2 ... but also as liquids...

So far, discussions on plastics in PCCP have focussed almost exclusively on solid, *water insoluble polymers*, i.e., microbeads; while little to no attention has been given to *water soluble polymers*²⁹⁶. The industry obviously wishes to keep it that way by arguing that liquid polymers cannot be called plastic because plastic is by definition a solid material, and furthermore stating that these are also not part of the water pollution problem²⁹⁷.

It might be that the current definition on microplastics from the European Chemicals Agency (ECHA) does not apply to liquid polymers in PCCP²⁹⁸; that of course does not have to mean that they are not a problem. *It could be that the legislation is outdated...* Given that public awareness about liquid polymers emerged only recently, and little scientific research seems to exist about their possible effects and impacts, this is a topic to which the academic common refrain that ‘*more research is needed*’ justifiably applies. Of course, just as for synthetic fibres (see 1.4.2 above) this should not serve as a free pass for inaction. As first research argues that microplastics and liquid synthetic polymers differ in their physical properties, but their impact on the environment and health poses a similar risk²⁹⁹, **liquid polymers in cosmetics should indeed urgently become a new centre of attention³⁰⁰. In that regard, the burden of proof should lie with the producers to ensure their product is safe for people and the environment.**

1.4.3.3 ... And this not only in personal care and cosmetic products

PCCP are a non-negligible market for liquid polymers. And, considering their *closeness* to the consumer and their frequent use (see 1.4.3.1 above), they certainly deserve particular attention. Yet, just as for solid microbeads, this indeed should not make us ignore how they are used in many other products too. They are, amongst others, also added to pesticides and fertilizers, and applied in the construction industry as an addition to concrete³⁰¹. Or, they are used to produce laundry and dish detergent pods. But, especially given that the liquid polymer problem is still strongly underassessed (see 1.4.3.2 above), the different products in which they are used should still be more comprehensively inventoried and their various leakage paths and impacts understood.

For the last application of detergent pods, for instance, one of the most widely used water-soluble polymers is Polyvinyl alcohol (PVA). Producers claim these pods to be biodegradable^{302,ag}. However, in practice it has been repeatedly demonstrated that PVA only really does so under very specific conditions and in the presence of selected microorganisms. These conditions are rarely met in natural environments³⁰³. Therefore, affirmations of biodegradability are overly simplistic.

Although both concepts seem sometimes to be used interchangeably, solubility does not equal biodegradability³⁰⁴. This means that assertions of PVA biodegradability, supposedly ensuring that there is no concern for persistence or accumulation in the environment³⁰⁵, are problematic. In this regard, early research in the US³⁰⁶ indicates that up to 75% of PVA from detergent pods in the country goes untreated in WWTP and ends up in the environment³⁰⁷. That is over 7,000 metric tonnes³⁰⁸. Once in the environment, “*the chances of it fully biodegrading are very low³⁰⁹”*.

Yet, so far, a comprehensive understanding of what happens to this PVA once in the environment and possible consequences for aquatic and terrestrial ecosystems are lacking. The above-cited US study indicates how initial research revealed that PVA can alter gas exchanges, such as carbon dioxide exchange, affect aquatic ecosystems, and

ag Note that all the authors of the article here referred to, work either for the International Association for Soaps, Detergents and Maintenance Products, McBride, Reckitt Benckiser, Unilever, Henkel, Kuraray, Procter & Gamble, or Boeije Consulting, a consultancy company providing services to the industry in question.

is capable of leaching into the groundwater. It has even been documented to mobilise heavy metals from sediments to water resources, and as such indeed is a threat to the environment³¹⁰. But, in order to push for relevant solutions, and to reasonably imply bans as quickly as possible while avoiding classical industry delay, further research on PVA and other liquid polymers is urgently needed.

1.4.4 Cocktail effect

Countless chemical substances are used in plastic production, many of which are identified as substances of potential concern yet are hardly studied accordingly³¹¹. Released throughout the entire life cycle of the plastic, they pose risks to the environment and human health. Yet, what is more: they do not stand on their own. To the various sources of (micro) plastic release, each of which is already problematic, can be added a further, even less tangible and yet even more troublesome hazard, namely the possible interaction between different pollutants once they're out in the environment.

Take the estimated 50 tonnes of plastics yearly entering Lake Geneva (see 1.4.1 above). Only about 10% (= 5 tonnes) thereof is removed through the Rhône³¹². The rest stays in the lake, amounting to what could be about 580 tonnes of plastics³¹³. Simultaneously, an estimated 50 tonnes of medicine residues and 12 tonnes of pesticides are also present in the lake³¹⁴. However, possible interactions among different chemicals and their impact on the environment, including human health are basically unknown^{ah}. *“The knowledge we have about the effects of various chemicals is based on studies of one chemical at a time, [yet] mixing different chemicals might alter their effect. This is commonly known as the cocktail effect [...]”*³¹⁵. **Considering the amounts of different chemical substances, including plastics, leaking into the environment, this interaction-problem should not be neglected.**

*“The chemical properties of plastic facilitate the accumulation of relatively large concentrations of contaminants, producing a complex mixture of chemical contaminants on marine plastic debris”*³¹⁶. So, once in the environment (micro)plastics are not only in themselves toxic³¹⁷, but can also act as ‘sponges’ for other pollutants³¹⁸. While not all plastics have the same absorption capacity, many of them indeed attract other pollutants³¹⁹. Thus, even plastics like polyethylene (used to make carrier bags), which in themselves are thought to be more benign can still become toxic by picking up other pollutants³²⁰. These mixtures of hazardous monomers, plastic additives, and absorbed pollutants, may impose a multiple stressor to marine organisms upon ingestion³²¹. Increasing hazardousness due to interaction between microplastics and other substances not only occurs in the oceanic environment but has also been observed in freshwater biotopes³²² and soil³²³. Considering this accumulating evidence about (micro)plastics and their interactions with other pollutants, it is astonishing that Swiss authorities still maintain that *“there is currently no evidence that microplastics pose a risk to the environment in Europe”*³²⁴.

“ Just trying to manage individual problems will not solve the overall predicament that we have brought upon ourselves. Only a systematic and fundamental change in how (much) and what we produce and consume will bring about solutions that are truly sustainable.

The cocktail problem is central to any discussion on plastics. It shows how our increasing plastic production and consumption do not stand on their own but interconnect with our way of life and its many externalities in general. In this regard, it has to be recognised that **none of the microplastic-problems presented before follows from what have traditionally been considered plastics.** Still today for instance, many numbers circulating about the amount of plastic being produced annually, do not include synthetic fibres, but only resins (see 1.1 above). Yet precisely microplastics- among others caused by the shedding of synthetic fibres- create increasingly complex problems which we are still far from fully grasping. This forces us to face an inconvenient but therefore not less unavoidable fact: **just trying to manage individual problems will not solve the overall predicament that we have brought upon ourselves. Only a systematic and fundamental change in how (much) and what we produce and consume will bring about solutions that are truly sustainable.**

^{ah} Research on cocktail effects is still quite new. Indicatively, of the 3'100 articles from a Google scholar search on “chemical cocktail” in November 2022, 1'330 seem to be published in the last five years (since 2018).

1.5 DISCUSSION AND CONCLUSION

Switzerland likes to see itself as the country where plastic is well taken care of. A clean country where plastic waste is being given a second life through recycling or as feedstock to sustainable energy production (see 1.3.1). This popular image does not match reality.

First, **plastic consumption is very high in Switzerland**, both compared to what it used to be not that long ago, as well as compared to many other parts of the world. This should be considered in any honest debate about sustainability (see 1.1).

Furthermore, **most plastic in Switzerland ends up being incinerated after only a short use**, rather than being recycled, let alone reused. **This hinders a circular approach officially promoted by the federal authorities**, as it limits the possibility for increased recycling, urged for by the Council of States. But also, **such incineration is much less clean than often claimed**. Both during incineration and afterwards many pollutants are produced, creating multiple health hazards and new waste disposal problems (see 1.2.1).

In this regard, recycling – which in Switzerland for plastic is very limited – can be part of a solution. Yet, it is far from the be-all and end-all of sustainable plastic use. First, **plastic in itself is not a circular material**. It cannot be recycled infinitely without loss. Second, the sheer number of different plastics and additives, and their countless combinations, makes them often practically impossible to recycle (even if in theory they could be). But most of all, **recycling does nothing about plastics leaking out during use** (see 1.2.2).

On this point it should first of all be recognised that **in Switzerland too, a litter problem does exist**. While we might control it at considerable financial costs, much litter is never recovered, and this comparatively more in natural environments than in residential areas. Among this *macroplastic* pollution, the main source is **consumer packaging including from take-aways** (see 1.3.1). A further source of plastic pollution, in Switzerland as much as elsewhere, comes from **improperly discarded cigarette butts** (see 1.3.2 above).

Adding to this visible pollution, is an invisible one in the form of **microplastics which cannot be realistically recuperated from the environment**. This microplastic is a key problem of our plastic-addicted society. It leaks out **mainly unaware to, and uncontrolled by the user**, but has **devastating effects on both the environment and humans** (see 1.4). While numerous sources of microplastics do exist, at least three can be distinguished which for a high-consuming society as the Swiss one are of particular concern. These are **tyre wear** released during driving (see 1.4.1); **plastic microfibrils** emitted by washing, drying, and wearing clothes made from, or containing synthetic textiles (see 1.4.2); and **microbeads and liquid plastics** poured into wastewater from personal care and cosmetic products (see 1.4.3). While each pollution is already problematic in itself, they furthermore add to a **chemical cocktail**, the scope of which is still little understood, and the effects still largely unknown. But, increasing evidence points to plastics attracting other pollutants, reinforcing toxicity beyond that of the various individual substances (see 1.4.4).

In this light, each of these microplastic releases (and plastic leakage *in general*, in whatever form) should be limited as much as possible. The best way to do so is to **drastically limit our consumption of plastic at all levels and in all forms**. *For those who do not consider this realistic because it would make our current lifestyle impossible, they should wonder how realistic our lifestyle is at a planetary scale to begin with.*

1.6 REFLECTIONS & RECOMMENDATIONS

- With 127 kg/person-year, the Swiss plastic consumption is comparatively high. → **This is why certainly in Switzerland considerable efforts should and could be done to limit said use.**
- Most of the plastic used in Switzerland (43%) is in circulation for less than a year before it becomes waste. The large majority thereof are disposable plastics. → **Focussing actions on limiting such plastics can prove an effective tool to reduce the amount of plastic, and its leakage in the country's environment.**

- The Swiss plastic system is essentially end-of-pipe. Focus lies on how to take care of waste through energy recovery (= the production of energy through incineration of waste). Contrary to what is often claimed, this goes hand in hand with a low level of plastic recycling and is not ecological. To honestly reinforce recycling, the amount of plastic sent to incineration will have to decrease, and reuse systems will have to be put in place. Simultaneously, this will diminish the many adverse environmental and health impacts from incineration. → **Switzerland should strongly reorientate its incineration-focussed waste strategy.**
- The orientation towards energy recovery has created a locked-in situation, the complexity of which should not be underestimated. As both the increase of recycling and reuse would mean that less plastic becomes available for waste-to-energy systems, this creates different challenges. Especially limiting disposable plastics which, except for PET beverage bottles, tend to be mainly incinerated, could cause under-capacity for waste incineration plants. When not well managed this could cause energy-supply problems which risk being solved (...) by the importation of waste (as has already been the case at Tridel in Lausanne where waste has been imported from Germany, Italy, or Austria³²⁵), or direct energy importation. Also, currently 30 incineration plants are operational in Switzerland. This represents an economic sector with its own objectives and interests which they can be expected to defend when they feel the need. → **When working towards limiting plastic consumption and increasing reuse and recycling, this must be kept in mind, and an effective strategy has to be thought of to respond to all these challenges.**
- Many problems related with plastic follow out of its sheer overconsumption in various forms (e.g. take-away food and synthetic textiles) linked with our way of life. → **To systemically tackle the plastic problem, this way of life will have to change.**
- Plastic pollution does not stand on its own. It interacts with many other forms of (chemical) pollution. This chemical cocktail goes to the heart of the plastic problem and confronts us with the fact that everything is connected. → **To deal with the plastic problem in an honest way, this interaction problem has to be recognised and taken into consideration when discussing the place of plastic in our society.**

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THE SWISS PLASTIC POLICY

SUMMARY

This chapter discusses the legislative and regulatory measures applying to plastic in Switzerland. It shows the following:

- Currently, no integrated policy on plastic exists in Switzerland; no law exists that specifically deals with plastic.
- Promising legislation exists regarding the recycling of PET-beverage bottles but as of now this only concerns this one specific material.
- Rules that potentially could apply to plastic do exist in Swiss environmental law. This opens opportunities for the restriction of disposable plastics and the limitation of microplastics leaking into the environment.
- In line with the fact that the Swiss plastic system is linear and end-of-pipe, federal law and authorities still strongly emphasise incineration as an appropriate and effective answer for dealing with plastic.

Considering the numerous problems and challenges related to plastic that Switzerland is confronted with, the question is what is the country currently doing about this. While interesting initiatives are taken at local and cantonal levels to limit the use of disposable plastics on their territory¹, concrete measures often are not taken because they are considered within the competence of the federal State and in conflict with federal law². Besides, these local initiatives deal with but one of the many issues that are associated with the omnipresence of plastic materials in today's society.

Therefore, this chapter looks at what indeed is done about plastic at the Swiss federal level. First of all, section 2.1 sketches the current plastic legislation; i.e., how is plastic – in all its forms – taken care of and what laws do- or can- apply? Then, section 2.2 discusses if this is enough, and for that matter, why not. In line with this discussion, section 2.3 elaborates on the contrast between many Members of Parliament being favourable to more decisive measures on plastics, and a Federal Council seemingly more reluctant to take a hard stance. Finally, section 2.4 resumes the chapter's main findings, and section 2.5 presents some reflections and recommendations for further action.

2.1 THE SWISS LEGISLATION ON PLASTIC^a

In 2013, the Federal Council presented an action plan on green economy³. This plan says little to nothing about plastics, and only mentions it twice in section 7.2 on 'waste and raw materials'. This section states that "more secondary raw materials (in particular with regard to plastics and construction waste) [has to be used to] reduce the need for raw materials and reduce the volume of waste produced", while measure 14 just compels retailers to take back consumer packaging, including plastic films and beverage packaging. According to a follow-up report from 2016, the retailers Migros and Coop have answered this call by voluntary putting in place a Swiss-wide collection system for the recovery of certain types of plastic packaging⁴.

^a This section is building on work the author participated in as part of a study for the Federal Office for the Environment; cf. Lauwerier et al. (2021), [Comparing European and Swiss Strategies for the Regulation of Plastics](#). Commissioned by the Federal Office for the Environment (FOEN) - Cahier de l'IDHEAP 318/2021.

However, if and how such voluntary measures concretely and structurally solve any real problem is unclear (see 2.3 below). More generally, neither this action plan, nor the follow-up report has led to the development of any legislation specifically dealing with plastic (and no such measures had been put in place previously). Thus, except for the *Beverage Container Ordinance* (BCO⁵, see 2.2 below), **there does currently not exist any Swiss law or regulation which concerns itself explicitly with plastic materials or products.**

As a specific plastic policy does not (yet) exist, it is not apparent which Swiss rules are, or could be, relevant. This, however, does not mean that no measures exist which could apply to plastic; if it were to be decided to make them do so. Based on a systematic search in the *Classified Compilation* (CC), the collection of the federal laws currently in force⁶, indeed some laws can be found which arguably could be called upon to regulate more strictly the production and consumption of (products containing) plastics.

This is first the case for the **Environmental Protection Act** (EPA⁷). Insofar as plastic materials are “*substances [composed of] manufactured chemical elements and their compounds [or] preparations (mixtures, blends and solutions) and articles containing such substances*” (EPA, art. 7 (5)), which may induce “*harmful effects or nuisances [for] people, animals and plants, their biological communities and habitats, [or for] the natural foundations of life sustainably, in particular biological diversity and the fertility of the soil*” (EPA, art. 1), this law covers them too. Consequentially, it includes several provisions that could be used to push back on today’s plastic overconsumption and alleviate the many problems caused by it.

First off, under Title 2 – Chapter 1, the EPA entrusts the Federal Council to “[*stipulate*] by ordinance the ambient limit values for assessing harmful effects or nuisances” (EPA, art. 13; also art. 29), essentially “*so that [...] pollution below these levels does not endanger people, animals or plants, their biological communities and habitats [nor] affect the well-being of the population [...] harm soil fertility, vegetation or waters*” (EPA, art. 14). As these articles concern “*air pollution, noise, vibrations and radiation*” (EPA, art. 11), they might apply to plastics when it comes to airborne microplastics. This said, as plastic materials, especially when it comes to quantity, have more impact in other environmental areas like water or natural habitats of animals, this makes other norms of the EPA more relevant.

Subsequently, the EPA, Title 2 – Chapter 2, “[*prohibits*] the putting into circulation of substances for uses where, when handled correctly, they, their derivatives or waste may present a danger to the environment or indirectly endanger people. To this end, the manufacturer or importer is responsible for their own self-regulation [but] the Federal Council issues regulations on the nature, extent and supervision of [such] self-regulation” (EPA, art. 26). And, “*any person who puts substances into circulation must inform recipients about their environment-related properties [and] provide [them] with instructions [about how to handle them]*” (EPA, art. 27).

Furthermore, based on the principle that “*the production of waste should be avoided [and] recovered wherever possible*” (EPA, art. 30), the Environmental Protection Act, Title 2 – Chapter 4, authorises the Federal Council to “*prohibit [the] placing [on the market of] products intended for once-only, short-term use [...]; to prohibit the use of substances and organisms that considerably hamper disposal or the disposal of which may represent a danger to the environment; [and] require manufacturers to avoid production waste where there is no known environmentally compatible process for its disposal*”, and to “*require certain types of waste that are suitable for recovery or that need special treatment to be handed over separately for disposal*” (EPA, art. 30a).

The same goes for other laws such as the Chemicals Act, the Waters Protection Act, or the Foodstuffs Act. While none of these laws even once mentions *plastics* (or for that matter, *polymers* or *synthetics*), each of them potentially applies to it.

Just as the Environmental Protection Act, the **Chemicals Act** (ChemA⁸) for example aims “*to protect the lives and health of human beings against harmful effects arising from substances^b and preparations^c*” (ChemA, art.

b I.e., “*chemical elements and their compounds in the natural state or obtained by any production process*” (ChemA, art. 4.1 (a)).

c I.e., “*mixtures or solutions composed of two or more substances*” (ChemA, art. 4.1 (c)).

1). Evidently, as plastics contain substances and preparations, this law could be invoked to regulate their placing on the market and use, if it were to be the case that these “[substances and preparations] are capable of presenting a hazard to life or health as a result of physico-chemical or toxic effects” (ChemA, art. 3 § 1). In this respect, it is “[t]he Federal Council [who] shall specify the properties deemed dangerous and define categories of danger” (ChemA, art. 3 § 2).

Likewise, the **Waters Protection Act** (WPA⁹) intends “to protect waters against harmful effects” (WPA, art. 1) by proscribing “[the introduction] into a body of water, either directly or indirectly [of] any substances which may pollute it” (WPA, art. 6). In this regard, it is again the Federal Council who “shall specify the water quality requirements for surface and underground waters” (WPA, art. 9 § 1), and who “shall enact regulations on the discharge of wastewater into bodies of water” (WPA, art. 9 § 2.a). Also, about wastewater treatment and installations, she “shall lay down the requirements for [...] residues from wastewater treatment plants, their recovery and disposal” (WPA, art. 16c).

The **Foodstuff Act** (FSA¹⁰), for its part, wants “to protect the health of consumers from [...] utility articles^d that are unsafe” (FSA, art. 1a). “The Federal Council shall stipulate the safety requirements for [these] utility articles” (FSA, art. 15 § 4). As many of such utility articles indeed are made from plastics, this law too could be used to govern plastics more stringently.

Considering the above, it follows that even without a particular plastic law in place, things could be done to regulate plastics more strictly in relation to their adverse effects, using the existing legislation. That is, if we wanted to.

2.2 FROM LAWS THAT COULD APPLY TO PLASTIC, TO ORDINANCES THAT DO NOT

While laws present legal provisions, to make them apply to concrete situations in Switzerland they are operationalised through ordinances. Regarding the above-mentioned laws, various ordinances apply.

First, in line with art. 13 EPA, limit values are set by the Federal Council in the **Ordinance on Air Pollution Control** (OAPC¹¹). The terms *plastics*, *polymer*, or *synthetic* do not appear in this ordinance, yet, as it covers particulate matters *PM10* (inhalable) or *PM2.5* (capable of entering the lungs)¹², and airborne microplastics fall under these categories, this regulation applies to them as well. However, these microplastics are considered here as part of particulate matter overall, and are as such not covered for themselves. Thus, in its current form this ordinance has little direct relevance to plastic materials.

In a similar vein, the **Ordinance relating to the Impacts on the Soil** (OIS¹³) implicitly applies to chemical harm to the soil due to plastic pollution. In reference to art. 29 EPA, this ordinance aims “to guarantee long-term soil fertility by regulating the observation, monitoring and evaluation of chemical, biological and physical harm to soil” (OIS, art. 1a, tfG). By ‘chemical harm’, it understands *the deterioration of the soil by natural or artificial substances (pollutants)*” (OIS, art. 2 § 2, tfG). The assessment of harm to the soil is based on guide values, trigger values and clean-up values listed in the ordinance’s annexes (OIS, art. 5 § 1)¹⁴. If no such values are specified, assessment should be carried out on a case-by-case basis, based on the criteria listed in art. 2 § 1. As the annexes contain no trigger or clean-up values for polymers, harm to the soil by microplastics is neither observed, nor systematically evaluated^e.

As to art. 26 and 27 EPA, on first sight, they seem promising, in particular with regard to the production and import of plastic. The more so, because, in line with art. 29 § 1a, “[the Federal Council may enact regulations on] substances or their derivatives that can accumulate in the environment”. Yet, to know if this applies to plastics, the question is whether these are considered “[to present] a danger to the environment or to indi-

d Such utility articles involve i.e., cosmetics, clothing, toys, ...

e Only certain pollutants sometimes used in the production of plastics are concerned, such as lead, but not polymers as such.

rectly endanger people”. In that regard, it is not the Environmental Protection Act, but the **Chemicals Act** and its ordinances that are decisive. While the Chemicals Act itself, just as the EPA, does not mention plastics, the **Chemical Ordinance** (ChemO¹⁵), “by way of clarification of the definitions given in the Chemicals Act”, does consider polymers to be a substance (ChemO, art. 2 § 2g). Though, in line with its art. 3, it does not consider them dangerous. Therefore, this ordinance does not apply to plastics. The **Chemical Risk Reduction Ordinance** (ORRChem¹⁶) on the other hand regulates “the restrictions and prohibitions on the use of specific substances, preparations and articles” (ORRChem, art. 3). Especially, it prohibits the manufacturing and/or placing on the market of plastic articles containing certain additives^f. Furthermore, a maximum content of plastics in fertilizers is determined in annex 2.6.

Chapter 4 of the Environmental Protection Act (art. 30 a- f.) asserts the key principles of waste prevention and reduction¹⁷ and establishes an order between them with waste reduction as first priority¹⁸. As nothing specifically states otherwise, stipulations from this chapter do apply to plastic waste too. However, yet again, to find if and how this also leads to concrete measures, the executing ordinances must be looked at.

First and foremost, this involves the **Waste Ordinance** (ADWO¹⁹). Being about waste in general, it essentially applies to plastic waste too. However, with regard to how to approach such waste and what to do with it, this ordinance is formulated in a rather general way which does not provide much specifics. Formally, its Chapter 3 is about *the avoidance, recovery and deposit of waste*; in that order. At the same time, we are told that “(t)he strategic approach of the Waste Ordinance is to consider waste as a source of raw materials and thus also as raw materials in a high-quality cycle²⁰” (tfG). **The balance between the intended avoidance and the recovery of waste remains unclear.** It apparently suffices for “[t]he environmental protection agencies [to] inform and advise private individuals and authorities on how to avoid producing waste and to dispose of waste. (ADWO, art. 7 §1, also: art. 11 § 1). Only in Art. 11 § 2 ADWO, it states that “[a]ny person who manufactures products must organise the production processes according to the state of the art so that as little waste as possible is produced and any waste that is produced contains as few substances as possible that harm the environment”. But also this provision is written in rather general terms.

Furthermore, art. 10 ADWO asserts that “[combustible] waste must be incinerated in appropriate facilities, unless their constituents may be recovered”, without for that matter clarifying how it is to be defined that such constituents might be suitable for recovery. As to such recovery, art. 17 stipulates that “in the case of construction work, special waste must be separated and disposed of separately from other waste” and in this regard mentions plastics as “recyclable waste”. Yet, art. 13 about *municipal waste* on the other hand asks “the cantons [to] ensure that the recoverable parts of municipal waste [...] are if possible collected separately and recycled”, but in this context only speaks of “waste such as glass, paper, cardboard, metals, garden waste and textiles” and does not mention plastic.

Most of all however, the Waste Ordinance shows how **the way we deal with (plastic) waste in Switzerland not only in practice, but also from a regulatory point of view remains oriented towards incineration.** Art. 12 ADWO (which concretises art. 30d EPA), declares that “waste must be recycled or recovered for energy provided recovery does less harm to the environment than: (a) any other form of disposal; and (b) the manufacture of new products or the acquisition of other heating fuels” and that “[such] recovery must be carried out according to the state of the art”. This ‘state of the art’ is defined as “the latest stage of development of procedures, installations and operating methods which (1) have been successfully tested in comparable facilities or activities in Switzerland or abroad, or have been used successfully in trials and may be used in other facilities or activities in accordance with the rules of the technology; and (2) is economically viable in a medium-sized and economically sound enterprise in the relevant industry” (art. 3m ADWO). So, as long as the official position remains that emissions from waste incineration are of minor importance²¹ and that the incineration of waste in a modern

^f Cf. Annex 1.1: hexabromocyclododecane, brominated diphenyl ethers, hexabromobiphenyl; Annex 1.9: decabromodiphenyl ether; Annex 1.18: phthalates; Annex 2.6: fertilizers (content of plastics must not exceed 0.1% of the mass of the dry matter); Annex 2.16: heavy metals in packaging; Annex 2.18: substances in electrical and electronic equipment (compliant to RoHS Directive). Annex 2.9 also prohibits the manufacturing or placing on the market of “cadmium-containing plastics” (art. 2 (1)a), as well as “articles which consist entirely or in part of plastics, which contain more than 1 mg of a polycyclic aromatic hydrocarbon” (art. 2 (1)ebis).

WIP guarantees gas discharges that are harmless to the population²², incineration can stay the main avenue for dealing with (plastic) waste. And even when other plastic waste treatments such as recycling may be more environment-friendly, as long as they are not economically viable in comparison to incineration²³, under the current regulation, incineration remains the preferred option.

Two further waste related ordinances do exist, the **Ordinance on Movements of Waste** (OMW²⁴) and the **DETEC Ordinance on Lists relating to Movements of Waste** (LMW²⁵). But neither of them has particular relevance to plastic waste, and certainly not as to how to limit such waste.

Subsequently, there is the **Beverage Container Ordinance** (BCO²⁶) which mainly in reference to art. 30a letter b, 30b § 2 and 30d EPA “regulates the supply and take-back of beverage containers used within Switzerland” (BCO, art. 1). As today nearly all beverage bottles are made from PET²⁷, first of all art. 7 § 1 applies. It requires “[d]ealers, manufacturers and importers who supply beverages in non-refillable PET or metal containers to consumers and who do not ensure the disposal of all containers they supply through financial contributions to a private organisation, [to] [a] take back such non-refillable containers [...]; [b] pass such non-refillable containers on for recycling at their own expense; and [c] indicate clearly in easily visible places at the points of sale that they accept the return of these types of non-refillable containers”. Subsequently, also art. 8 concerns PET-bottles, as it puts “the recycling level for beverage containers made from glass, PET and aluminium [at] a minimum of 75% for each material” (§ 1), while stipulating that “if the target is not achieved, DETEC may require that dealers, manufacturers and importers: [a] charge a minimum deposit on non-refillable containers of the material concerned; [b] accept the return of such containers and refund the deposit; and [c] pass returned containers on for recycling at their own expense” (§2). Other relevant rules concern *composition* (BCO, art. 3) and *labelling* (BCO, art. 4), and the obligation for “dealers, manufacturers and importers that supply beverages in refillable containers to consumers to charge a deposit [and to] take back refillable containers of all the products they stock and refund the deposit” (BCO, art. 5(1)). “The deposit shall be not less than CHF 0.30 for any beverage container” (BCO, art. 5. (3)). These measures, however, in practice only apply to glass containers.

As to the implementation of the Waters Protection Act, and in particular its art. 9, the **Waters Protection Ordinance** (WPO²⁸), aims to “facilitate the protection of surface and underground waters from harmful effects and enable their sustainable use” (WPO, art. 1 §). Given that microplastics may cause *harmful effects*, this ordinance arguably applies to them too. However, as the WPO currently does not explicitly set any limits for plastics in water (in whatever form or state)²⁹, in practice it has not been applied to microplastics so far.

Finally, we find a set of ordinances giving effect to the Foodstuff Act. Just as in the case of the law itself, these ordinances apply to plastics insofar as they are used in utility articles. While the Foodstuff Act itself does not mention plastics, its ordinances do contain some plastics related clauses. First, the **Ordinance on Foodstuffs and Utility Articles** (FSO³⁰) which “regulates the manufacturing, processing, handling, storage, transport and placing on the market of foodstuffs and utensils” (FSO, art. 1 § 1.a – *tfG*), contains three articles (art. 50-52) on the *recycling of plastics for objects and materials that come into contact with food*. These rules more specifically regulate the authorisation procedure for recycled plastics in the production of utility articles. The **Materials and articles ordinance**³¹ for its part “specifies the materials and articles intended to come into contact with foodstuffs and determines requirements thereon” (art. 1 § 1- *tfG*). In this regard it also concerns itself with such *materials and articles made from (recycled) plastic* (Section 5, and 6). Finally, the **Ordinance on materials to enter in contact with the human body**³², mentions certain plastics under art. 14 on *requirements applying to childcare articles*. While it is true that none of these provisions consider plastics *per se*, they show how further measures for regulating plastics and the substances they contain could be justified for reasons related to their adverse health effects on (certain parts of) the population, if evidence indicates this.

It may be clear from this discussion that while Swiss laws contain promising elements for dealing with plastic, their concrete execution is lacking. Legally, possibilities do exist to develop a policy which better regulates the use of plastic and its adverse effects on both the environment and humans, but **a reluctance seems to exist to translate available legal clauses into concrete measures**.

2.3 (A PART OF) THE PARLIAMENT SEEMS WILLING, BUT WHAT ABOUT THE GOVERNMENT?

Interestingly, this contrast between *legislative ambition* and *executive reticence*, also seems to come forward from the answers to parliamentary interventions. While many postulates and motions instruct the Federal Council to examine and report on whether to submit a bill to the Federal Assembly or to take a measure in order to regulate (certain) plastics or related aspects more stringently, **the Federal Council seems hesitant to do so**.

Through a systematic assessment of Curia Vista (the database of parliamentary proceedings³³), since 2000 we find a total of 76 interventions (all types included, see Annex 2) unequivocally dealing with plastics^g. Just about half of these come from members of green parties. At least 18 explicitly ask for some ban regarding the commercialisation or use of a certain type of plastic material, product, or additive. Four further interpellations, one question, and one postulate inform about the possibility to do so. The Federal Council, however, systematically shuns such a possibility and, at least on five occasions, it has explicitly rejected the possibility to use art 30a EPA³⁴ which authorises it to prohibit certain products in accordance with the principles there set out (see 2.1 above). The Federal Council does so, based on a limited number of recurring arguments.

Most often the Federal Council claims that further, restrictive measures are not needed as this would not be proportionate, because (a) there is no problem, (b) the problem is not considerable enough, and/ or (c) the problem is well taken care of in Switzerland. Other answers include that the decision lies with the consumer, or that it is not scientifically sure that there is a problem (see Table 1).

Table 1 – Parliamentary interventions asking for a plastic ban: arguments Federal Council

Intervention	Type	Topic	Scientifically uncertain	Consumer decides	Not proportionate	No legal disposition available	Covered by existing legislation/ actions	Wait what is happening in EU	Alternative proposed?
J. Zisyadis 08.3303	M	BPA	x						
D. De Buman 08.3438	M	SUP bags		x	x				
D. De Buman 10.3850	M	SUP bags		x	x				
A. Bugnon 10.3923	I	BPA	x						
T. A. Moser 10.5483	Q	BPA	x						
I. Cassis 11.3219	I	SUP bags		x	x				
M. Graf 11.4199	I	Bio-plastic packaging			x	x			Self-regulation
D. De Buman 13.3620	I	Oxo-plastic					x		
B. Glättli 14.3255	M	Microbeads	x						Self-regulation
B. Glättli 14.5176	Q	Microbeads	x						Self-regulation

^g Interventions were searched for through Curia Vista, the database of the Swiss parliament. A general search was carried out in French by using the word “plast[...]”. This presented 10 different search terms (« plastique », « plastique à usage unique », « plastique pour développer l’économie circulaire », ...). Additional searches were carried out in German, on “Verpackung”, “Abfall”, “Reifen”, and “Kosmetika”. The results for each of these terms were systematically looked at, and the relevant ones were kept, resulting in 76 interventions. Last check: September 2022.

<u>B. Glättli</u> <u>16.3586</u>	M	Microbeads	x		x					
<u>B. Gyssi</u> <u>18.3132</u>	I	Microbeads			x				Self-regulation	
<u>B. Glättli</u> <u>18.3327</u>	M	Microbeads						x	Self-regulation	
<u>I. Chevalley</u> <u>18.3721</u>	I	Oxo-plastic						x		
<u>R. A. Ruiz</u> <u>18.4317</u>	I	SUP bags/ packaging			x					
<u>U. Schneider Schüttel</u> <u>18.5249</u>	Q	SUP			x				self-regulation	
<u>U. Schneider Schüttel</u> <u>19.3484</u>	I	SUP			x					
<u>M. Romano</u> <u>19.3765</u>	P	SUP					x		Self-regulation	
<u>I. Chevalley</u> <u>19.4182</u>	M	Oxo-plastic	(*) Answer only states "Der Bundesrat beantragt die Annahme der Motion."							
<u>L. Mazonne</u> <u>19.4276</u>	I	Packaging			x				Self-regulation	
<u>N-S Gugger</u> <u>19.4629</u>	M	Cigarettes	x						Self-regulation	
<u>I. Chevalley</u> <u>19.5143</u>	Q	Oxo-plastic						x		
<u>D. Klopfenstein Broggini</u> <u>20.3637</u>	M	Take-away items			x		x		Self-regulation	

M = Motion; Q = Question; I = Interpellation; P = Postulate; P. I. = Parliamentary Initiative

But, how are these arguments expedient as a basis for sound policy?

Take the last one *about 'lacking scientific evidence'*. In answer to a motion asking for a ban on non-reusable cigarette filters because of the micro-plastics and toxic substances they release into the environment³⁵, the Federal Council argued that *"in order to justify such a ban, the harmfulness of cigarette filters to the environment, in particular the direct effects of the released microplastics and the organic pollutants on the health of organisms, would have to be clearly demonstrated"* (tfG). However, as *"these specific effects have not been adequately documented"*, *"[a] ban would mean a disproportionate interference with the freedom of trade and business compared to the environmental benefits"* (tfG). A similar sound we hear in reaction to different interventions about intentionally added microbeads. As *"no firm statements can be made at the moment about the extent of [this] pollution and the danger to the ecosystems"*³⁶ (tfG), and *"there is still no solid knowledge about the origin of microplastics in water bodies or the effects of microplastics on aquatic life [and] [a]ccording to the current state of knowledge, it cannot be said to what extent wastewater treatment plants remove microplastics from wastewater"*³⁷ (tfG), *"[b]ased on current knowledge, the Federal Council regards a ban [...] as a disproportionate measure"*³⁸ (tfG).

“ We should wonder how much ‘the-science-is-not-yet-in’ is a sound argument and how much we believe it acceptable to expose ourselves, others, and the environment to potential harm. ”

But we have heard this same line of argument before. Most notably on (products containing) BPA. **This should make us question how much ‘the-science-is-not-yet-in’ is a sound argument and how much we believe it acceptable to expose ourselves, others, and the environment to potential harm.**

THE CURIOUS CASE OF BPA – DEFENDED BY THE FEDERAL COUNCIL AGAINST ALL ODDS.

In its answer to a motion by green MP Josef Zisyadis in 2008, asking for a ban on baby bottles with Bisphenol A³⁹, the Federal Council declared that “[i]n view of today’s scientific knowledge, [it] is of the opinion that a ban is not justified” (tfG). It continues this line of argument in 2010, stating that “[a]t the present time [...] it sees no need for further measures, neither to protect health nor to protect the environment⁴⁰” (tfG), and that “based on current scientific knowledge, the use of [the precautionary] principle [by the EU] is abusive⁴¹” and “the pronounced ban [in the EU] is in contradiction with the recent scientific opinions of the EFSA and the WHO⁴²” (tfF). Also in later answers, the Federal Council remains on this position, confirming in 2011 that in its opinion, “[t]he European Union regulation which prohibits from 1 June 2011 the placing on the market and the importation of baby bottles containing BPA is not based on scientific considerations, but calls for the precautionary principle⁴³” while adding that “she considers that, based on current scientific knowledge, the use of this principle is abusive and the pronounced ban is in contradiction with the recent scientific opinions from EFSA and WHO. Switzerland therefore does not plan to apply this ban today⁴⁴” (tfF). **And yet... six years later, in 2017, also Switzerland ultimately banned BPA from baby bottles and in 2020 from thermal paper⁴⁵.** Of course, we are still reassured that “BPA does not pose any health risk to consumers⁴⁶” (tfG). How can this be?

On a scientific level, already in 2005 results on adverse effects of BPA have been found to differ remarkably between industry research and government-funded studies; with the first ones finding no significant effects, and the last ones generally reporting significant effects of low doses⁴⁷. Furthermore, on a regulatory level, “[b]ased on new data and methodologies, EFSA [in 2015] has lowered the estimated safe level, known as the tolerable daily intake (TDI), [for BPA] to 4 micrograms per kilogram of body weight per day. This is twelve and a half times lower than the previous level⁴⁸”. And, in 2017, ECHA identified BPA for inclusion in the Candidate List of Substances of Very High Concern (SVHC)⁴⁹ because of both its **endocrine disrupting properties** and its **reproductive toxicity**⁵⁰. While this was challenged twice by Plastics Europe, in both cases the ECHA decision was confirmed by the European Court⁵¹. Plastics Europe appealed against the second ruling⁵², but lost⁵³. Upon inclusion in the Candidate List in 2018, further legal disputes followed, yet again the Court dismissed the complaints of Plastics Europe and ruled in favour of ECHA⁵⁴. Unsurprisingly, Plastics Europe also appealed this judgment⁵⁵. The final court ruling in this case is expected by the end of 2022, but so far, the opinion of the Advocate General on the main argument of PlasticsEurope proposes that the Court should reject it in its entirety as unfounded⁵⁶. Overall, the Court is known to follow the Advocate General’s opinion...

Further work on BPA is underway. With the new *Restrictions Roadmap*, adopted under the Chemicals Strategy for Sustainability⁵⁷, the EU intends to no longer focus on the regulation of individual chemicals, but will look at groups of chemicals. In the case of BPA, this means that loopholes such as replacing it with other bisphenols like Bisphenol F, S or HPF – about which research indicates a comparative level of toxicity⁵⁸ – would be closed⁵⁹.

Put against these developments, Switzerland with its – in theory – still favourable attitude towards BPA, seems to become the last man standing, just as we noted before with regard to incineration (see 1.2.1 above).

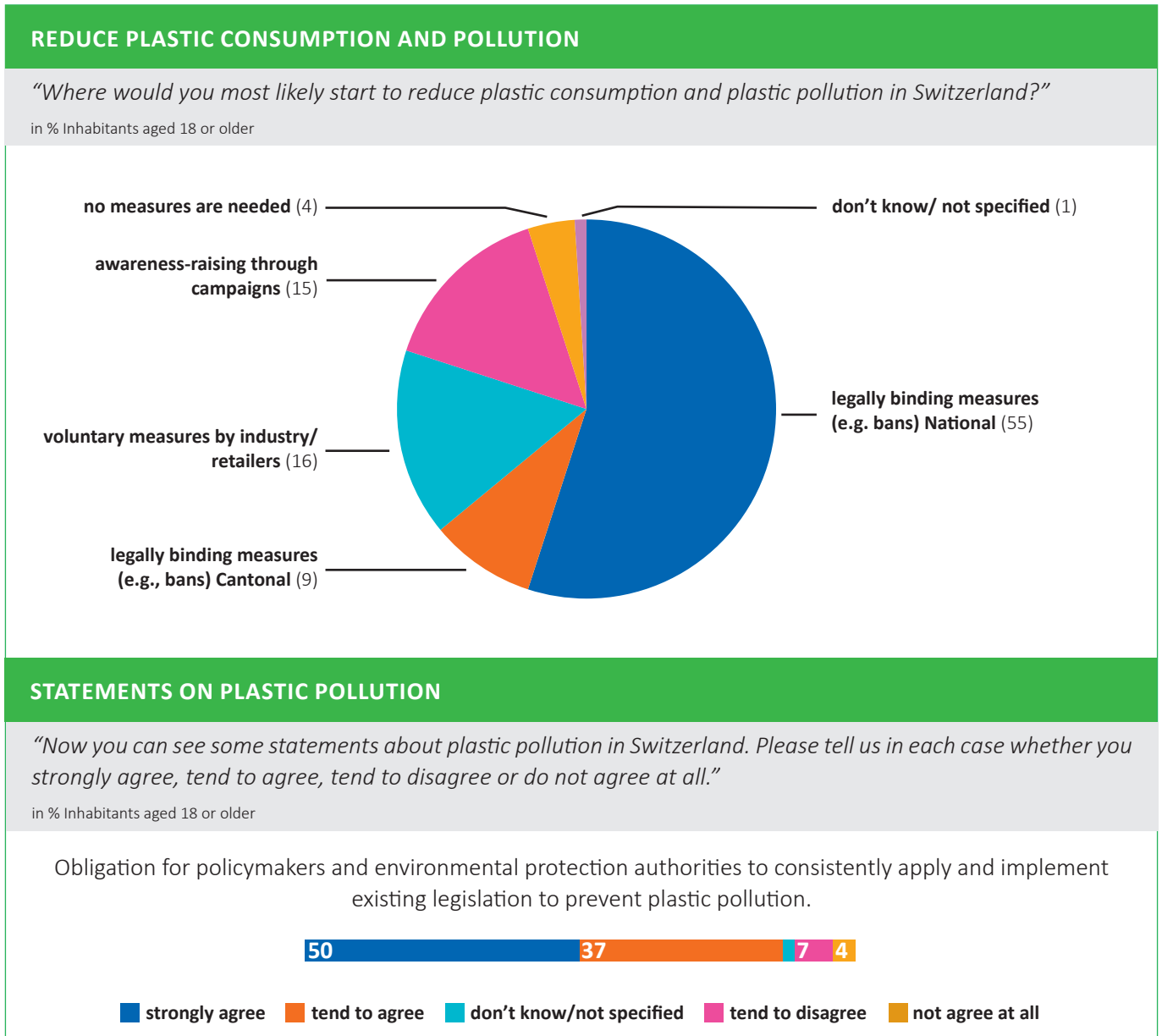
Incineration is another recurring argument why bans would not be proportionate. Especially about single-use plastic bags and packaging, the Federal Council reassures us that “the energy released during the incineration of waste is used in all waste incineration plants to produce electricity and heat [...] [and] the flue gases produced during combustion are effectively cleaned so that only low emissions are caused. Therefore, there are no ecological reasons in Switzerland that would justify such a drastic measure as a ban⁶⁰” (tfG). Or, as put elsewhere, “[s]ince in Switzerland packaging

[...] is generally disposed of correctly and either materially or energetically valorised, only a small proportion of the packaging ends up in the environment. Therefore, the Federal Council considers that a standard setting limits in the form of percentages for plastic packaging would not produce the desired effect for the time being⁶¹ (tfG).

As a counter-solution to restrictions or bans the Federal Council often expresses its preference for self-regulation by the private sector, like sectorial agreements, to deal with possible nuisances caused by plastics (see Table 1). However, except the sector agreements between the *Swiss Retail Federation* and *Detailhandel Schweiz* on both single-use and multiple-use plastic bags⁶², no other relevant agreement so far exists. While PET recycling through *PET Recycling Schweiz* could be considered a further example of industry self-regulation, it still is the law that sets the framework by ordering a minimum recycling rate of 75% (BCO, art. 8). And, even for the plastic-bag agreements, it was only upon the treat of a parliamentary motion⁶³ on prohibiting these bags, that the sector acted⁶⁴. Additionally, **the Federal Council does not explain how it assesses the success of such measures**. We are assured that “[s]ectoral agreements are an adequate instrument to reduce the use of plastics and their contributions to the environment⁶⁵” (tfG), and in the answer to an interpellation by green MP Irène Kälin asking for less plastic packaging⁶⁶, we are told that “[a]s part of the reporting on the green economy, the Federal Council will evaluate these and other voluntary measures and, if necessary, propose adjustments” (tfG). But, looking at this report^h, it is not clear how it actually carries out such an evaluation, and more generally there seems to be no information about how voluntary initiatives are evaluated. This is not to say that self-regulation cannot be a good tool. But obviously, it should not just be supposed that it is, simply because it exists. However, currently, this seems exactly to be the case. **Self-regulation and private initiatives are repeatedly put forwards as key solutions, but do they also work?** I.e., do they really solve something; do they make an existing problem smaller (without creating another)? That is much less obvious. A measure should not only be efficient and effective, but also have real, sustainable impact⁶⁷. The question is simple: **does a measure contribute to a real, consistent, and long-term decrease and ultimately disappearance of the problem it intends to tackle, and this not just in relative - but in absolute terms**. For instance, both Migros and Coop have put in place a system for collecting certain types of plastic waste through collection bags and collection points⁶⁸. These certainly are well-meant initiatives. However, both Migros and Coop told us that, to their knowledge, the main share of this plastic collected for recycling ends up to be used in the construction industry, mainly as raw material for cable sheathing and cable ducts, or street posts⁶⁹. Does this really solve anything? Does this limit the amount of disposable plastic packaging used? Does this limit the share thereof that ends-up littered in the environment? Does this decrease the amount of virgin plastic material needed? Does this decrease the energy needed to turn all this plastic material into disposable items used only once, or at best a few times? ... **Is this a real solution to any of the real problems related to our over consumption of plastic?** That is what we should wonder about when the pertinence of a measure is considered. Not the fact that a measure is taken is important, but if this measure has a real impact.

Of course, we should not read all this in a simplistic, dichotomous way as the *good parliament vs the bad government*. From the Federal Council’s answer to the interpellation by Irène Kälin, from 9 May 2019 asking for less plastic packaging⁷⁰, we learn that in 2015 it was the Parliament who rejected a revision of the Environmental Protection Act “Green Economy” intended to install a collection obligation for certain packaging (plastic bottles with lids) precisely with the argument that the economy itself can take action through voluntary measures within the framework of its producer responsibility. Furthermore, the Parliament most of the time accepts the Federal Council’s proposal to reject parliamentary interventions on limiting plastic and does not follow up on the Federal Council’s response to the initial intervention. Nonetheless, as the numerous parliamentary interventions and their answers show, many MP’s do indeed want the Federal Council to take more decisive action for dealing with problems related to plastic. In that regard, they ask for the use of existing laws and regulations, but the Federal Council is reluctant to do so. Noting also the public’s support for regulatory measures to reduce plastic pollution in Switzerland, this should change.⁷¹ (see Figure 3).

h While not completely clear from the answer to Interpellation 19.3484 which report this is about, we can arguably suppose that this concerns the report of 19.06.2020: [Massnahmen des Bundes für eine ressourcenschonende, zukunftsfähige Schweiz \(Grüne Wirtschaft\)](#).



2.4 DISCUSSION AND CONCLUSION

In contrast with the EU which is putting in place a comprehensive plastic strategy (see chapter 3 below), the Federal Council does not seem to see a need at the present time to develop an action plan or a strategy regarding plastics⁷². This means that still today in Switzerland no overall plastic policy exists and **no single law exists dealing with plastics in particular**.

However, multiple legal provisions can be found in federal laws (see 2.1) which could be used to regulate plastic production, use and pollution... **if we would want them to**. Most noteworthy in this regard is art. 30a of the Environmental Protection Act which gives the Federal Council the possibility to prohibit the placing on the market of single-use products and to prohibit the use of substances and organisms that considerably hamper disposal, or the disposal of which may represent a danger to the environment. Yet, **looking at relevant regulations, again none specifically concerns plastics and few regulative articles concern plastic materials or products**. Plastic is considered as part of other things (particulate matter, waste...), but not separately. Furthermore, as part of overall waste, **the preferred avenue for dealing with plastic waste, as regulated in the Waste Ordinance, also from a policy point of view remains incineration** (see 2.2).

Notably, the contrast between laws that could apply to plastic, and regulations that do little or not, goes together with a **Federal Council reluctant to take more decisive action, even if the law does allow it to do so** (see 2.3). This is a key point in any discussion about how to tackle problems related to plastic in Switzerland. Looking at what is happening in the EU, Switzerland certainly should develop a more comprehensive plastic strategy. However, the absence of such a strategy should not hinder us in using existing laws and regulations to engage already today in a more active approach towards the problems caused by plastic in its different forms. **Even in the absence of a singular policy, legal and regulatory instruments are available to tackle plastic. We should start using them.**

2.5 REFLECTIONS & RECOMMENDATIONS

- Switzerland does not have a comprehensive plastic strategy. While the development of such an integrated approach is certainly to be recommended, its absence should not stop us using the existing laws and regulations to tackle the problems following from the overuse of plastic. → **Rather than searching for an integrated plastic policy, a useful approach could be to focus attention first on existing legislation and work towards a more explicit integration of plastic materials and products into the applications of these rules.**
- Plastic waste as part of overall waste is largely incinerated. This is not just a matter of practice, but also of policy. Being confusing and contradictory as regards to its priorities, the Waste Ordinance ultimately focuses on incineration as a preferred channel of waste treatment. → **The Waste Ordinance should be revised such that it details how to avoid (plastic) waste and how to increase material recovery.**
- Self-regulation can be a good instrument for dealing with plastic issues. Yet, if this is really to be the case, it should be certain that it really contributes to solving a problem. Therefore, self-regulation should answer to clear goals and have a measurable real-world, long-term impact. → **When opting for self-regulation, public authorities should be clear from the beginning about how they will assess the success of this approach.**
- Noting the frequent reference to self-regulation, rather than the application of art. 30a letter a EPA, it would be pertinent to systemically assess the actual impact of self-regulation. → **The Federal Council should abstain from not using this article on the unique ground that self-regulation is possible without systematically assessing if this really solves something.**
- With art. 30a letter a EPA, a strong legal instrument does exist which could be used to limit disposable plastic products. → **The Federal Council should let go of its reluctance to apply this article.**

ENDNOTES

- 1 See: RTS (26.06.2020), [Les sacs en plastique à usage unique bientôt bannis à Fribourg](#); 24 heures (26.12.2019), [Plastique à usage unique: dès 100 francs d'amende ; République et Canton de Genève](#) (19.12.2019), [Fin de la gratuité des sacs en plastique aux caisses](#); Ville de Genève, [Mise en oeuvre de l'interdiction du plastique à usage unique sur le domaine public de la Ville dès 2020](#); Ville de Genève, [Bannissement du plastique à usage unique en ville de Genève](#); Südschweiz (05.08.2019), [Stadt prüft Vorschriften für Einwegplastik an grossen Festen](#).
- 2 See: BAZ (15.02.2019), [Basler Regierung gegen Motion gegen Plastik](#); SRF (27.06.2018), [Doch kein Verbot von Trinkröhrli aus Plastik in Neuenburg](#).
- 3 Federal Office for the Environment (08.03.2013), [Report to the Federal Council- Green Economy: Report and Action Plan](#).
- 4 Bundesamt für Umwelt (20.04.2016), [Bericht an den Bundesrat- Grüne Wirtschaft. Massnahmen des Bundes für eine ressourcenschonende, zukunftsfähige Schweiz](#), pp. 15-16.
- 5 Ordinance on Beverage Containers (Beverage Container Ordinance, BCO) of 5 July 2000 (Status as on 1 January 2008), [CC 814.621](#).
- 6 Lauwerier et al. (2021), *op cit.*, pp. 73-74.
- 7 Federal Act on the Protection of the Environment (Environmental Protection Act, EPA) of 7 October 1983 (Status as of 1 January 2022), [CC 814.01](#).
- 8 Federal Act on Protection against Dangerous Substances and Preparations (Chemicals Act, ChemA) of 15 December 2000 (Status as of 1 January 2017), [CC 813.1](#).
- 9 Federal Act on the Protection of Waters (Waters Protection Act, WPA) of 24 January 1991 (Status as of 1 January 2021), [CC 814.20](#).
- 10 Federal Act on Foodstuffs and Utility Articles (Foodstuffs Act, FSA) of 20 June 2014 (Status as of 1 May 2021), [CC 817.0](#).
- 11 Ordinance on Air Pollution Control (OAPC) of 16 December 1985 (Status as of 1 April 2020), [CC 814.318.142.1](#).
- 12 Federal Office for the Environment (12.05.2020), [Plastics in the environment | Factsheet No 3 – Air](#).
- 13 Verordnung über Belastungen des Bodens (VBBo) vom 1. Juli 1998 (Stand am 12. April 2016), [SR 814.12](#).
- 14 See: Swiss Agency for the Environment, Forests and Landscape (2001), [Commentary on the Ordinance of 1 July 1998 relating to impacts on the soil \(OIS\)](#), pp. 8-10.
- 15 Ordinance on Protection against Dangerous Substances and Preparations (Chemicals Ordinance, ChemO) of 5 June 2015 (Status as of 1 September 2021), [CC 813.11](#).
- 16 Ordinance on the Reduction of Risks relating to the Use of Certain Particularly Dangerous Substances, Preparations and Articles (Chemical Risk Reduction Ordinance, ORRChem) of 18 May 2005 (Status as of 1 June 2021), [CC 814.81](#).
- 17 93.053. Botschaft zu einer Änderung des Bundesgesetzes über den Umweltschutz (USG) vom 7. Juni 1993, [BBl 1993 II 1485](#).
- 18 *Ibid.*, [BBl 1993 II 1488](#).
- 19 Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance, ADWO) of 4 December 2015 (Status as of 1 January 2021), [CC 814.600](#).
- 20 Bundesamt für Umwelt (2019), [Probenahme fester Abfälle. Ein Modul der Vollzugshilfe zur Verordnung über die Vermeidung und die Entsorgung von Abfällen \(Abfallverordnung, VVEA\)](#), p. 7.
- 21 Der Bundesrat (15.11.2017), [Kapazitätsplanung bei Kehrichtverbrennungsanlagen mit Abwärmenutzung. Bericht des Bundesrates in Erfüllung des Postulats 14.3882Knecht \(Killer\) vom 25. September 2014](#), p. 3.

- 22 Etat de Vaud, Déchets urbains- L'incinération des déchets dans une UIOM.
- 23 See: Dinkel et al. (2017), *op cit.*
- 24 Verordnung über den Verkehr mit Abfällen (VeVA) vom 22. Juni 2005 (Stand am 1. Januar 2020), [SR 814.610.](#)
- 25 Verordnung des UVEK über Listen zum Verkehr mit Abfällen vom 18. Oktober 2005 (Stand am 1. Januar 2018), [RS 814.610.1.](#)
- 26 Ordinance on Beverage Containers, *op cit.*
- 27 Hawkins et al. (2018), De l'eau mise en bouteille. Chapitre 1. Revue d'anthropologie des connaissances, 12 (4).
- 28 Waters Protection Ordinance (WPO) of 28 October 1998 (Status as of 1 January 2021), [CC 814.201.](#)
- 29 Appia M. (2019), Éléments Pour Une Analyse Des Apports et Limites Du Cadre Légal Fédéral à La Gestion Durable Du Cycle Des Matières Plastiques En Suisse, Université de Lausanne- IDHEAP. Master thesis under the guidance of prof. Stéphane Nahrath (not published), p. 57.
- 30 Lebensmittel- und Gebrauchsgegenständeverordnung (LGV) vom 16. Dezember 2016 (Stand am 1. Juli 2020), [SR 817.02.](#)
- 31 Verordnung des EDI über Materialien und Gegenstände, die dazu bestimmt sind, mit Lebensmitteln in Berührung zu kommen (Bedarfsgegenständeverordnung) vom 16. Dezember 2016 (Stand am 1. Dezember 2020), [SR 817.023.21.](#)
- 32 Verordnung des EDI über Gegenstände für den Schleimhaut-, Haut- und Haarkontakt sowie über Kerzen, Streichhölzer, Feuerzeuge und Scherzartikel (Verordnung über Gegenstände für den Humankontakt) vom 23. November 2005 (Stand am 20. April 2021), [SR 817.023.41.](#)
- 33 See: The Federal Assembly – The Swiss Parliament, [Curia Vista – Database of parliamentary proceedings.](#)
- 34 See: Motion by Dominique De Bumann, 01.10.2010 ([10.3850](#)), Interpellation by Rebecca Ana Ruiz, 14.12.18 ([18.4317](#)), Interpellation by Irène Kälin, 09.05.2019 ([19.3484](#)), Motion by Delphine Klopfenstein Broggini, 16.06.20 ([20.3637](#)), and Motion by Niklaus-Samuel Gugger, 20.12.2019 ([19.4629](#)).
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- 37 Motion by Balthasar Glättli, 21.03.2014 ([14.3255](#)), answer by the Federal Council.
- 38 Motion by Balthasar Glättli, 17.06.2016 ([16.3586](#)), answer by the Federal Council.
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- 40 Motion by Tiana Angelina Moser, 19.03.2010 ([10.3338](#)), answer by the Federal Council.
- 41 Parliamentary question by Tiana Angelina Moser, 06.12.2010 ([10.5483](#)), answer by the Federal Council.
- 42 *Ibid.*
- 43 Parliamentary question by Chiara Simoneschi-Cortesi, 07.06.2011 ([11.5245](#)), answer by the Federal Council.
- 44 *Ibid.*
- 45 Bundesamt für Gesundheit BAG (Dezember 2020), Bisphenol A, p. 3.
- 46 *Ibid.*, p. 4.
- 47 Vom Saal F. S. & Hughes C. (2005), An Extensive New Literature Concerning Low-Dose Effects of Bisphenol A Shows the Need for a New Risk Assessment. *Environmental Health Perspectives*, 113 (8).
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- 51 InfoCuria Case law, Judgment of the General Court (Fifth Chamber) of 11 July 2019. PlasticsEurope v European Chemicals Agency REACH — Establishment of a list of substances identified with a view to their eventual inclusion in Annex XIV to Regulation (EC) No 1907/2006 — Inclusion in that list of Bisphenol A as a substance which is toxic for reproduction — Articles 57 and 59 of Regulation No 1907/2006, Case T-185/17; InfoCuria Case law, Judgment of the General Court (Fifth Chamber) of 20 September 2019. PlasticsEurope v European Chemicals Agency REACH — Establishment of a list of substances identified with a view to their eventual inclusion in Annex XIV to Regulation (EC) No 1907/2006 — Supplement to the entry relating to the substance bisphenol A on that list — Articles 57 and 59 of Regulation No 1907/2006 — Manifest error of assessment — Legal certainty — Legitimate expectations — Proportionality, Case T-636/17; also: Chemical Watch (24.09.2019), EU court rejects second case against BPA SVHC identification.
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- 61 Interpellation by Rebecca Ana Ruiz, 14.12.18 ([18.4317](#)), answer by the Federal Council.
- 62 Swiss Retail (a), Branchenvereinbarung Plastiksäcke; Swiss Retail (b), Schweizweiter Verzicht auf Gratisabgabe von Plastiksäcken: Swiss Retail Federation und IG Detailhandel Schweiz erweitern ihre Branchenvereinbarung.
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- 65 Interpellation by Ursula Schneider Schüttel, 06.09.2019 ([19.3560](#)), answer by the Federal Council.
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- 72 Der Bundesrat (Bern, 23. September 2022), *op cit.*, p. 35.



International developments at EU and global level

Summary:

This chapter looks at developments in the regulation of plastic outside of Switzerland. It focuses on what is happening in the European Union and recent developments in the context of the United Nations Environmental Assembly (UNEA). It shows the following:

- Over recent years, the EU has developed a comprehensive approach towards plastic through the development and ongoing implementation of its *Strategy for Plastic in a Circular Economy*.
- The comprehensive character of this Strategy offers a promising new way for dealing with plastics and the many problems caused by their production and use.
- However, we should be careful not to overestimate the EU's plastic policy and unquestioningly accept it as the only appropriate way forward. On a closer look, multiple questions continue to be unanswered, and many shortcomings and much ambiguity remain to be sorted out.
- There are several existing conventions and agreements at a global scale that have taken an interest in plastic pollution, especially marine plastic litter and microplastics, recognising it as *"a rapidly increasing serious issue of global concern that needs an urgent global response¹"*. At the most recent fifth UN Environment Assembly in March 2022, a Resolution was adopted, called *"End plastic pollution: Towards an international legally binding instrument"*. It agreed to convene an intergovernmental negotiating committee (INC) to develop an international legally binding instrument on plastic pollution by the end of 2024, including in the context of the marine environment. The new instrument will be based on a comprehensive approach addressing the full lifecycle of plastics. It holds the potential to radically reduce the human-induced threats posed by plastics to nature, human health, the ocean, and biodiversity at large.

Switzerland is obviously not the only country struggling with plastic in its environment and the multiple other problems of today's systematic plastic overproduction and -consumption. To take a proper grip on the problem, many countries and regions are now taking measures, and at an international level, efforts are also being made to address this pernicious issue.

This chapter therefore turns to developments outside of Switzerland, in particular within the EU, which can inform the development of Swiss plastic actions and serve as examples for the road forward, although they should not be used as an excuse to delay Swiss action. Nor should they be considered as the only truthful way forward, to be blindly followed by Switzerland. Rather, Switzerland, while keeping an eye on what happens elsewhere, must find solutions within the context of how the plastic problems manifest themselves in the country, and with consideration for the particularities of the Swiss situation and existing legislation.

3.1 THE EUROPEAN UNION: A EUROPEAN STRATEGY FOR PLASTIC IN A CIRCULAR ECONOMY^a

The Swiss federal authorities monitor EU activities concerning plastic, and *"[t]he FOEN is examining the applicability of the individual elements of the EU Plastics Strategy to Swiss conditions within the context of processing the parliamentary initiatives²"*.

^a Just as for section 2.1, this section elaborates on the work done by Lauwerier et al. (2021), *op cit*.

Indeed, since the launch of the *Strategy for Plastics in a Circular Economy* in 2018, the EU is an often-cited example of a comprehensive, new policy on plastic³. And the European Commission assures us that “[...] Europe is [...] paving the way for the rest of the world^a”.

3.1.1 The development of an EU plastic policy

In December 2015, the European Commission adopted the *Action Plan for a Circular Economy*⁵. The plan proposes a set of 54 actions for a more circular European economy. These actions focus on five priority areas: *plastic, food waste, critical raw materials, construction and demolition, and biomass and bio-based products*. For the first area, the plan (p. 13), presents four objectives: (1) increasing plastics recycling; (2) prevent and significantly reduce marine pollution, including (plastic) marine litter; (3) develop smarter collection and certification schemes for collectors and sorters; and (4) innovation in plastics.

To concretize these objectives, the Commission, in January 2018, published the *European Strategy for Plastics in a Circular Economy*⁶. Building on earlier publications⁷ and legislative initiatives such as the 2015 directive on *reducing the consumption of lightweight plastic carrier bags*⁸, the strategy introduced key commitments for EU action. In section 3, it lays out a *vision for a circular plastic economy* composed of two sets of objectives. First, nine goals are formulated for ‘a smart, innovative and sustainable plastics industry’. These are all about increasing and improving plastic recycling. Second, five goals deal with plastic *production and consumption* and the *waste* it creates. Essentially, these goals search to decouple plastic waste generation from growth. The final purpose of all this, is to address *three interrelated problems*⁹: Europe’s high dependency on virgin fossil feedstock, its low rate of recycling and reuse of plastics, and the significant leakage of plastics into the European environment.

As one of the main building blocks of the *European Green Deal* from December 2019^b, the European Commissions in March 2020 adopted *A New Circular Economy Action Plan*¹⁰. Section 3.4 of this new plan is about plastic. It affirms the objectives and orientations of the previous plan from 2015 as well as of the 2018 EU plastic strategy. First of all, it reconfirms the focus on increased recycling. As further points of action, it mentions (2) microplastics (prohibiting intentionally added microplastics, measures to capture microplastics in wastewater, ...), (3) biodegradable and bio-based plastics, and the continuous (4) implementation of the single-use plastics directive.

3.1.2 From plans to concrete actions

To turn its vision of a circular plastic economy into reality, the EU strategy proposes a package of *41 EU measures*¹¹. These measures, also called *actions*, are organised along four main categories and 13 sub-categories. Furthermore, the strategy proposes a list of measures for national authorities and the industry¹².

To realise these actions, various legislative initiatives have been taken or are under way – mainly in the form of directives which then have to be transposed into national legislation.

The most visible among these is the so-called **single-use plastic directive** (SUP-directive)¹³. This directive from 2019 is most known for its list of single use plastic products which Member States have to prohibit from placing on the market (art. 5; Annex B). This list presents nine single-use plastic items to be banned: cotton bud sticks, cutlery, plates, straws, beverage stirrers, balloon sticks, and food and beverage containers & cups (including their caps and lids) made of expanded polystyrene. Oxo-degradable plastic has to be prohibited too. The directive also includes measures on consumption reduction for cups and food containers (art. 4; Annex A), product and marking requirements (art. 6 and 7), extended producer responsibility (EPR) (art. 8), separate collection (art. 9), and awareness raising measures (art. 10).

Other relevant measures are put forward by the **packaging and packaging waste directive**¹⁴ (as amended in 2018) and currently under further review (a proposal for revision is expected by 30 November 2022). This directive (amended art. 6) stipulates that by 31 December 2025 a minimum target of 50% by weight for recycling should be met for plastic

b The European Green Deal itself talks very little about plastics.

contained in packaging waste. This should be 55% by 31 December 2030. It also defines that oxo-degradable plastic packaging shall not be considered biodegradable (Annex (1) (b)). Moreover, it tries to increase the share of reusable packaging (art. 5) and to improve the design for reuse of packaging material (art. 9 new § 5). It also puts into place extended producer responsibility for packaging (art. 8).

Additionally, the **plastic carrier bags directive**¹⁵, adopted in 2015 (i.e., before the development of the plastic strategy), is relevant. It requires Member States to take measures to achieve a sustained reduction in the consumption of lightweight plastic carrier bags on their territory (new art. 4). Additionally, other legislative acts can indirectly apply to aspects of plastic production, consumption, or waste, or empower the Commission to adopt delegated acts. This is the case for the **ship waste directive**¹⁶ or the **tyre labelling regulation**¹⁷. The latter for instance allows the Commission “to include parameters or information requirements for tyre abrasion and mileage, as soon as reliable, accurate and reproducible methods to test and measure tyre abrasion and mileage are available” (art. 13.3).

Other legislative actions are underway. For instance, an initiative is planned to deal with microplastics in the environment. As a first step, the European Commission requested the European Chemicals Agency to prepare a restriction dossier about the use of intentionally added microplastics to consumer or professional use products¹⁸. ECHA subsequently submitted such a restriction proposal for microplastic particles in January 2019¹⁹. This proposal introduced a wide-ranging restriction on intentional uses of microplastics in products placed on the EU/EEA market²⁰, including – but not restricted to PCCP²¹. However, so far, the proposal got diluted considerably after relentless industry pressure²², and the procedure is still under way, with legislation still expected²³. After this, transition periods can apply to certain products²⁴, which can delay actual banning until 2030²⁵. The Commission is also preparing an initiative about biodegradable and compostable plastics²⁶. Additionally, it launched non-legislative work regarding the life cycle assessment of plastic and alternative feedstocks²⁷, or an EU wide pledging campaign to increase the uptake of recycled plastic²⁸. Finally, in March 2022, the European Commission adopted “a package of European Green Deal proposals to make sustainable products the norm in the EU, boost circular business models and empower consumers for the green transition²⁹”. Amongst others, this package “foresees measures to tackle the unintentional release of microplastics from textiles, ensure the accuracy of green claims, and boost circular business models, including reuse and repair services³⁰”.

3.1.3 The EU plastic policy, a step forward, but...

The EU strategy offers a comprehensive vision of the various challenges related to the production and consumption of plastic. **The strategy’s key value lies in the recognition of the plastic problem in all its various dimensions.** It offers a framework for developing legislative initiatives in a coherent way. As such, it indeed presents a new politico-legal approach to plastic which can allow the Union to tackle the plastic problem in a structured and systematic manner. This is promising. However, **the strategy has some shortcomings which, if not urgently taken care of, will structurally hamper its ability to honestly turn the tide on growing plastic overproduction and -consumption.**

First of all, the EU strategy does not offer any definition of plastics. This is strange for a document which “lays the foundations to a new plastics economy³¹”, intends “to tackle the environmental problems that today cast a long shadow over the production, use and consumption of plastics³²”, and wants the EU “to lead the transition to the plastics of the future³³”. This opens the door to much confusion. Although the strategy for instance mentions microplastics “generated through wear and tear of products such as tyres, paints and synthetic clothes³⁴”, it cites a global plastic production of 322 Mt in 2015³⁵. This only covers resins and does not include synthetic fibres³⁶, estimated at about 60 Mt for that year³⁷. The SUP-directive on the other hand presents definitions for both plastic (art. 3(1)) and single-use plastic (art. 3(2)); but these leave room for loopholes, as a recent study by Eunomia discusses³⁸. This is especially an issue with the definition of ‘natural polymers’ which allows for many exemptions³⁹. On this matter, Client Earth has sent the Commission an open letter⁴⁰ in which they express their concern about the interpretation of the definition of ‘plastic’ in the Commission guidelines on single-use plastic⁴¹. The bioplastic industry on the other hand disagrees with the Eunomia study⁴² and, overall, bioplastic producers have protested the directive because the way that it defines plastics “can prove to be a difficult obstacle to innovative, sustainable solutions aimed at saving the world from plastic waste⁴³”. This reveals that loopholes and some ambiguities in the **EU plastic policy hinders the coherent development of that policy and limits its effectiveness.**

Second, the SUP-directive, art. 4, requires Member States “to take the necessary measures [...] to achieve an ambitious and sustained reduction in the consumption of single-use plastic products [...]”. Yet, the broad terms in which the article is formulated leaves much space for Member States to do but the bear minimum and it does not require them to actually ban the single-use plastic items listed in Annex A to the directive. And “critically, [Member States] are not allowed to ban products without prior EU approval as doing so may harm the common market⁴⁴”. If and how all this will actually lead to a measurable quantitative reduction in the consumption of single-use plastic products, as art. 4 assures, is not explained. And **how to square the directive’s ambitions with the strategy’s affirmation that plastic production “is expected to double again over the next 20 years⁴⁵” is unclear.**

This statement – as if the current and future increase in plastic production is nothing but a self-evident fact – brings us to a last, but fundamental reflection on the EU strategy. **The strategy presents a lot of ambition, yet, notable and unexplained contradictions catch the eye.** And, importantly, the much-promoted *circular plastic economy*, seems essentially to be but a new code-word for the decade old promise of increased recycling.

Repeatedly, the Strategy talks about how “[c]hallenges linked to the production, consumption and end-of-life of plastics can be turned into an opportunity for the EU and the competitiveness of the European industry. Tackling them through an ambitious strategic vision, covering the entire value chain, can spur growth, jobs and innovation⁴⁶”. It’s at least a bit cynical that a challenge which Europe brought upon itself and the world would now be an opportunity to boost its competitiveness and growth. Things will be solved with more competitiveness, new jobs, “a smart, innovative and sustainable plastic industry⁴⁷”, “smarter and more recyclable plastics materials⁴⁸”... But, **at no point, the EU strategy seems to wonder if and why we need all this plastic.** The idea that we need plastic to cut CO₂ emissions, save on energy bills and reduce food waste, as stated in the strategy’s introduction, supposes that without it, our way of live and consumption patterns and levels would be essentially the same. This fails to recognise how precisely **plastics have been an enabler of the soaring consumption levels we witnessed over the last decades.** This is a telling example of the well-known **Jevons paradox⁴⁹**. Plastics, for instance, may well have made airplanes lighter and therefore less fuel consuming, this however contributed to a decrease in the relative cost of flying per consumer, hence bringing more people to fly and to fly more often. Therefore, to really solve the problem of reducing CO₂ emissions or address food waste, it does not need materials’ substitution but a system’s change (see 4.3).

In this light, the discourse about circularity becomes problematic. **How it is possible that plastic production will double over the next 20 years (see above) while at the same time being circular, we are never explained.** If indeed “[p]lastics and products containing plastics [will be] designed to allow for greater durability [and] reuse [...]”⁵⁰, then logically less new plastic products will have to be produced. Thus, production should have to go down, not double. Besides, on closer look, the circularity promoted by the strategy is yet again mainly about recycling. As noticed before (see 2.4.1.1 above), under the first set of objectives to realise a *vision for a circular plastic economy*, all nine goals are essentially about improving recycling. With regard to waste generation, on the other hand, an important focus remains with citizen awareness and action, with two out of five goals stating this explicitly.

3.2 INTERNATIONAL POLICY DEVELOPMENTS

3.2.1 Worldwide action in Europe and beyond

Not only the EU is taking measures to regulate plastic. Both at the level of individual Member States, as well as in countries outside of Europe, national and local authorities are putting up efforts to tackle the ongoing flood of plastic.

As of November 2022, only two EU Member States have still not taken the necessary actions to translate the EU SUP-directive into national law⁵¹. Others, like Italy, have been criticised by environmental NGOs for not properly implementing the directive⁵². Yet, other Member States go further than what the EU prescribes: be it Ireland on microbeads (see 3.2.1.3 below), or France on vegetable packaging⁵³, European legislators do not always wait on Brussels to act. And at the local level, all over Europe, law-makers are searching for solutions. For instance, supported

by the Zero Waste Cities programme, around 450 cities and municipalities, mainly in Italy and Spain have committed to the goal of continuously reducing waste generation and improving waste separate collection⁵⁴.

But, also outside of Europe, governments are taking action⁵⁵. For instance, worldwide more than 90 countries have installed (partial) bans on single-use plastic bags, many of which are in Africa and Asia⁵⁶. And, a still limited but increasing number of States have taken action towards a ban on microbeads⁵⁷. Notable in this regard, is that many poorer countries took measures long before there was even a real debate on plastic reduction in the Global North, especially about plastic bags. Bangladesh, for instance, already in 2002 decided to ban plastic bags. And while the government struggles to implement the ban⁵⁸, it is still the first country that seriously thought about doing so. More successful – and still older than any comparable measure in Europe – is a ban on all non-biodegradable polythene bags in Rwanda in 2008⁵⁹. Other African countries such as the Republic of Congo⁶⁰ or the DRC⁶¹, amongst others, have followed and (tried to) put in place plastic bag bans, or are planning to do so⁶². While some of these bans in practice may lack implementation⁶³, or could be criticised for being top-down and punitively oriented⁶⁴, it shows that **Europe could certainly not claim a monopoly on environmental consciousness. Switzerland is even lagging very far behind on decisive regulatory action on any plastic item.**

The argument that primarily developing countries would have to take such drastic measures because they do not have the capacity to properly manage their waste, as the Swiss Federal Council argues in its answer to a parliamentary motion (see 1.3.1 above), is as said, unfair. The fact that we have the means to build infrastructure for incinerating our waste, does not acquit us from our waste overproduction as such. Besides, recall that incineration just turns the waste problem from a visible one into an invisible- but therefore not less problematic one (see 1.2.1 above).

Rather than reluctantly maintaining that we don't have a problem, it is time to recognise what is happening elsewhere, in Europe and beyond, as examples for possible actions that will have to be taken in Switzerland too; actions, not just oriented towards managing visible plastic waste, but aimed at reducing the use of plastics.

3.2.2 Global momentum to address plastic pollution: a new plastic treaty

At the international level, over 40 conventions and other mechanisms provide some form of regulations for plastic⁶⁵. However, none of the existing frameworks is specifically designed to prevent increasing flows of plastic pollution into the biosphere, nor to comprehensively manage the plastic pollution already present in the environment.

Amongst others, the “*Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter*” (the so-called 1972 London Convention) and the subsequently concluded London Protocol from 2006, aim to protect the marine environment from human activities and to promote the effective control of all sources of marine pollution⁶⁶. As such, this includes plastic. The “*International Convention for the Prevention of Pollution from Ships*” (MARPOL, 1973), on the other hand, comprises regulations aimed at preventing pollution of the marine environment by ships⁶⁷. Also the “*United Nations Convention on the Law of the Sea*” (UNCLOS) adopted in 1982, contains a commitment to “*prevent, reduce and control pollution from land-based sources*”⁶⁸. Finally, there is the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal* which goal is to protect human health and the environment against the adverse effects of hazardous and other wastes⁶⁹. Since amendments were made in 2019, this is the only global instrument to specifically address plastic waste⁷⁰.

As part of the Agenda for Sustainable Development, SDG 14.1 states the need “*by 2025, [to] prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution*”, placing the issue of marine plastic pollution squarely on the international agenda. In recent years there has been progress towards building an effective global governance regime to address the acknowledged and significant ecological, social, and economic impacts of marine plastic pollution. However, plastic pollution also holds direct relevance to SDGs 3, 6, 11, 12, 13, 15 and 17, among others.

Yet, while all of this could indirectly apply to plastic too, or does concern certain issues related to it, none addresses “*the impacts of plastics throughout their whole life cycle, from fossil fuel extraction, to plastic refining and manufacture,*

to waste management⁷¹". Overall, **the existing global and regional legal landscape for addressing plastic pollution is fragmented and uneven**⁷². Despite the growing recognition that long-term, comprehensive, and multilateral action is needed, so far, no international agreement exists that focuses primarily on plastic pollution⁷³.

However, things are moving. Initiated by a proposal from Norway, the UN Environment Assembly (UNEA) the world's highest-level decision-making body on the environment, at its first session in Nairobi in 2014 adopted a resolution on marine plastic debris and microplastics⁷⁴. Three further resolutions followed at subsequent UNEA sessions in 2016, 2017, and 2019⁷⁵. Due to the COVID-19 pandemic, UNEA-5 took place in two parts. After a first virtual session (UNEA-5.1) in February 2021, substantive matters requiring in-depth negotiations were deferred to UNEA-5.2 from 28 February to 2 March 2022⁷⁶. This culminated in the adoption of Resolution 5/14 titled "*End plastic pollution: Towards an international legally binding instrument*", which agreed to convene an intergovernmental negotiating committee (INC) to develop an international legally binding instrument on plastic pollution, including in the marine environment, by the end of 2024⁷⁷.

The new instrument will be based on a comprehensive approach that addresses the full lifecycle of plastic, including provisions to:

- promote national and international cooperative measures to reduce plastic pollution in the marine environment, including existing plastic pollution;
- provide scientific and socio-economic assessments related to plastic pollution;
- increase knowledge through awareness-raising, education, and information exchange;
- promote cooperation and coordination with relevant regional and international conventions, instruments, and organizations;
- consider best available science, traditional knowledge, knowledge of indigenous peoples and local knowledge systems;
- initiate a multi-stakeholder action agenda.

Thus, the new treaty should tackle problems across the whole plastic life cycle, from the extraction of raw material needed for its production, to its use and disposal; and needs to be developed, implemented, and embedded within the broader sustainable development landscape.

The aim is to conclude negotiations by the end of 2024, after which it would open for signature at a Conference of the Plenipotentiaries in 2025. The resulting agreement has the potential to re-define humanity's relationship with plastics for the decades to come, meaning negotiators have a tremendous responsibility to ensure it is future proof.

3.3 DISCUSSION AND CONCLUSION

Both within the EU and outside Europe, **political authorities have started to take action against plastics**. Not only the EU as such, but also many of its Member States as well as other countries are taking measures to curb the flood of disposable plastic, decrease microplastic leakage or turn around excessive (plastic) packaging use. Most noteworthy for its comprehensiveness is in this regard the EU Strategy for Plastics in a Circular Economy. Notwithstanding its obvious shortcomings, this **can give inspiration to Switzerland for (re)formulating its own, more comprehensive plastic policy and leap from its current situation of being a laggard, to being a leader**. While the point is not that Switzerland should take over this or other policies without further reflection, it could do good to follow them with great attention, to learn from them and use them as input to its own actions.

Also, the recent developments at international level, with **negotiations about to start on a legally binding international plastics treaty**, should encourage Switzerland to recognise the full extent of the plastic problem and increase its efforts about it. At the international level, Switzerland showed commitment by co-sponsoring the resolution which will serve as a basis for the upcoming treaty. Also, as member of the newly formed High Ambition Coalition to End Plastic Pollution, Switzerland shows its commitment to take bold action to end plastic pollution by 2040 through

restraining plastic consumption and production⁷⁸. The country should show the same drive at its own, national level. In line with the upcoming treaty and anticipating the need for National Action Plans as required by UNEA Resolution 5/14, it should **deal with plastic and the problems it creates at all levels of the plastic life cycle**.

3.4 REFLECTIONS & RECOMMENDATIONS

- Many countries and other political entities are stepping up action to tackle the plastic crisis. → **Switzerland should not lag behind but should follow these examples. It should use them as input to the development of its own comprehensive national action plan.**
- The EU is considered by many (not the least of all by itself) as a trailblazer in terms of tackling the plastic crisis. With its Strategy for Plastic in a Circular Economy, it puts forward the basis for a comprehensive and integrated plastic policy. → **Switzerland could learn much from this. However, it should guard itself from simply trying to take over the European approach. The Strategy has some obvious shortcomings, of which Swiss authorities should be aware. They should not use it as an argument for their own inaction, but rather consider it as interesting model in their reflections and development of a Swiss plastic policy.**
- Within the context of the UN Environmental Programme, an international legally binding plastics treaty, intended to cover the whole plastic life cycle, is under negotiation. Switzerland was one of the co-sponsors of the resolution triggering the process, and is a member of the High Ambition Coalition the End Plastic Pollution. → **Swiss authorities should translate this international commitment into more decisive action at the national level. The plastic problem is not only something that touches developing countries but also clearly manifests itself within Switzerland. Therefore, international engagement should be matched by national action.**

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4 Some wider reflections on today's plastic overconsumption

SUMMARY:

This chapter reflects on our awareness of the plastic problem over time and its relationship with other challenges we are facing. It shows the following:

- While the scale of today's plastic crisis is unprecedented and results from a continuously accelerating overconsumption, long before problems reached their current magnitude, people were already aware of the problems we were creating.
- The plastic crisis does not stand on its own but is interconnected with many other socio-environmental problems.
- To solve the plastic problem (and those other problems) these interconnections and their underlying reasons must be fully recognised.

The plastic problem often seems to only have gained awareness over the last few years. However, people were aware of it long ago, and warned about the material's many environmental costs. And yet, until today, plastic production and consumption continues to accelerate.

To guide today's discussions and advance solutions that really make a difference, we need to be more thoughtful about this. **Framing our current predicament in some wider, historical reflections is necessary to understand where precisely today's problems are coming from, and a precondition for solving them without creating yet again new ones** (section 4.1 and 4.2).

In a similar sense, we should not overlook how the plastic problem does not stand apart. It is not a separate issue but shares common roots with for instance climate change or biodiversity loss (section 4.3). To tackle these various challenges, these common roots have to be acknowledged and addressed.

4.1 MISSED LESSONS FROM EARLY WARNINGS

***“Our consumer society produces an increasing amount of waste. The Federal Council encourages recycling and environmentally friendly disposal, but does not do enough on production. This suits the industry. Not only does it continue to produce waste – **by now around 400 kg per person and year** - it can also increasingly provide the necessary facilities for its disposal. This vicious circle must be broken. There are suggestions as to how the problem could be tackled at the root: more stable, reusable material, less packaging, etc. The federal government is very determined in the fight for air pollution control. Could it not also develop an **overall concept for reducing waste and ensuring that there is less waste through a coherent and determined policy**¹”** (tfG).*

That was 1991.

... Four hundred kg of waste per person... In 1972 it was but 300 kg per person². In 2005 it was 661 kg, in 2019 it was 709 kg (see 1.1 above).

*“Human beings are an integrated part of the ecological cycle. **Today, we are aware that modern society has broken the ecological cycle and is still breaking it.** The biosphere has certainly shown an enormous capacity for resistance, which has enabled it to withstand a strong increase in population, without getting out of joint. This population growth and the expansion of economic production led to the consumption of natural resources and a strain on the natural foundations of life. **In the last decades, our society has developed into a consumer and throwaway society. An overexploitation has and is taken place which calls for attention.** At the same time, our living environment is heavily encumbered, or even destroyed, by the production of waste. **Waste constitutes both an ecological and an economic burden: it involves the loss of scarce natural resources and causes high costs due to its pollution and its disposal.** As a result of the increasing scarcity of nature and the environment due to our overexploitation and the threat from our flood of waste, the regeneration process is impaired. However, we need both the economy and the environment. It is necessary to restore the disrupted ecological cycle. Solutions that can help are waste recycling, and the limitation of waste production. Reducing waste production has the lowest economic cost and is the most effective for the ecological cycle. [...]”*³ (tfG).

That was 1987.

*“It is becoming increasingly fashionable to use disposable packaging instead of reusable packaging for beverages. Beverage cans represent a particular growth market. Although the annual Swiss consumption of such cans has not yet reached American proportions, 100 million beverage cans are thrown away each year. That means a twenty-fold increase within 10 years. **Article 32 paragraph 4 of the Environmental Protection Act empowers the Federal Council to stipulate a deposit for certain packaging or to prohibit packaging of bulk goods if it leads to disproportionate amounts of waste. I ask the Federal Council whether it wants to make use of this legal competence in order to be able to curb this flood of cans**”*⁴ (tfG).

That was 1986.

... Divided by the population at the time^a, 100 million cans meant a bit more than 15 cans per person. In 2020, Red Bull alone sold 19 cans per person in Switzerland⁵. Overall, according to Igora.ch – the sector organisation for aluminium packaging recycling – in 1987 the Swiss consumed 1,580 tonnes of aluminium beverage cans, compared with 12,191 tonnes in 2019. But we are assured that in 1987 only 19% were recycled, whereas in 2019 this was 94%⁶. Of course, based on these numbers, recycling quantities may well have increased 38 times from 300 tonnes in 1987 to 11,490 tonnes in 2019, non-recycled quantities did not even go down by half from 1,280 tonnes in 1987 to 701 tonnes in 2019. And, while for instance in 1992 only 68% of the beverage cans were recycled, at 589 tonnes, the amount of non-recycled cans was considerably lower than what it is today (see Annex 3).

Similar to the situation described with regard to synthetic fibres versus natural fibres (see 1.4.2 above), this increasing aluminium beverage can consumption shows that claims about how plastic consumption would be increasing because it is replacing other materials⁷ do not correspond to reality. Swiss PET beverage bottle consumption has increased considerably from about 4,175 tonnes (0.62 kg/ pers.) in 1991 to around 44,573 tonnes (5.22 kg/ pers.) in 2019. Yet, so has aluminium beverage can use: from 1,700 tonnes (0.25 kg/ pers.) in 1991, to 12,223 tonnes (1.43 kg/ pers.) in 2019 (see Annex 4). As for glass bottles, while their consumption decreased considerably from 37.98 kg/person in 2001 to only 29.84 kg/person in 2005, recently it went up again to 36.73 kg/person in 2019 (see Annex 5).

4.2 PLASTICS, A MAN-MADE CRISIS OF RECENT ORIGIN

In our fast-paced society **we conveniently forget how recent many of the challenges we face today actually are:**

- Western European plastic consumption was estimated to be 136 kg/ person in 2015. Ten years earlier, in 2005, this was still 99 kg, and in 1980 it was but 40 kg (see 1.1 above).

^a = 6.504 million people ; cf. [Google > Population Suisse \(1986\)](#).

- About 20 years ago the now omnipresent coffee-to-go cup was mainly known in Switzerland through some American television series (see 1.3.1 above).
- Clothing sales exploded over the past decade; these clothes are worn less and less. This cheap fast-fashion model is enabled by an increasing use of synthetic fibres (see 1.4.2 above).
- Mainly since the 1990s microbeads started to be added to an increasing number of cosmetic products (see 1.4.3.1 above).

“ **Ten, thirty, fifty years ago we were more than well informed about the problems we were creating and what they would lead up to.** ”

Obviously, the roots of our (plastic) overconsumption, go back a bit further, but not that much; a few decades at most^b. And, as the above cited parliamentary interventions, or warnings about microbeads (see 1.4.3.1 above) and plastic in the ocean⁸ show, **long ago people were well aware that we were creating a problem. That too we conveniently forget^c.** We clear our conscience by telling ourselves – up to the point that we actually believe it – that *we just did not know about the problem previously*. In our fast-paced society, we fool ourselves into thinking that only recently we became *ecologically aware*. We fail to remember that ten, thirty, fifty years ago **we were more than well informed about the problems we were creating and what they would lead up to.** We fail to remember how ten, thirty, fifty years ago, already many people warned us that things had to change if we did not want the problems to get (much) bigger. But we did not listen to ourselves. The problems got bigger anyway.

A DOCUMENTARY ON PLASTICS, FROM 1972

In the archive of the RTS (*Radio Télévision Suisse*), a documentary from 1972 is available. It exposes elaborately how already 50 years ago – at a time when plastic consumption was but a fraction of today – many questions were asked about the increasing use of the material. Already at the time, this documentary pondered how *“everybody knows full well that plastic is harmful and we don’t know what to do with it. It’s annoying because our self-services swear by the wasteful packaging, mostly plastic. Of all that is discarded, this packaging represents a volume of 35% more than what was discarded just 4 years ago. Is there no reason to be afraid of this?”*⁹ (tFF).

Most notably, the documentary presents well-thought reflections about reusable versus disposable packaging. It notes in this regard how the single-use bottle is *“saving time, effort and money. ... For the manufacturer in any case”*¹⁰ (tFF) which *“does not have to deal with the return of the bottles”*¹¹ (tFF). Indeed, as a self-reflective bottled water producer notices, *“throwaway packaging - plastic or glass - must be disposed of, if the environment is to be preserved. Hence once again a source of rising cost of living. By adopting disposable packaging, we make our life easier, we make the task easier for the distributor. On the other hand, we complicate that of the cities which become almost dumps”*¹² (tFF). Surely, return bottles imply extra costs for the manufacturer-distributor passed on to the consumer¹³. *“However, let’s not forget, that the consumer who pays each time for this packaging will also pay to destroy it. It is therefore reasonable to ask whether these 4 or 6 hundred million [to be saved by the distributors] will not end up costing us less than eliminating the formidable pile of garbage that is awaiting us in the coming years”*¹⁴ (tFF).

Indeed, this **cost-externalisation from business to society, from the private sector to the public sector, and from the people as consumers to the people as citizens**, has led to a situation where just the elimination of household waste by local authorities costs each inhabitant CHF57 per year (data for 2009)¹⁵. Extrapolated for the total population that is about CHF442 million to be paid by different taxes and garbage bags purchased. ►

b Of course, *‘the roots of these roots’* are embedded in the development of consumer capitalism and historical trends going back much further; but this is neither the place nor the format to dive into this. However, to fully grasp the many socio-environmental problems the world is facing today, we would do good to reflect more honestly and self-critically about this.

c For the record, the same we see regarding climate change, about which too we used to be much more aware than we now care to admit; cf. New York Times (01.08.2018), *Losing Earth: The Decade We Almost Stopped Climate Change*;

This does not include other waste fractions. Overall, municipal waste management costs an average of CHF129 per inhabitant per year¹⁶; that is CHF1 billion. This does not include non-municipal waste fractions. The disposal of all waste costs Switzerland a total of around CHF3 billion a year¹⁷. As noticed before, the country is kept clean, but at a high price (see 1.3.1 above).

Also, with regard to possible solutions, current ideas are less original than we wish to believe. Initiatives such as *Réseau Consignes*¹⁸ or *AuReverre*¹⁹ in Romandie indeed present real solutions to limit the production of waste (see 4.2.3.1 below). But, if we had listened to the self-reflective bottled water producer, such deposit and reuse systems would have continued to be around for 50 years. For him, **already in 1972, the future had to be a standardised bottle, to be used and useable by everyone**²⁰. But we did not listen. Rather we led ourselves be blinded by profit-seeking at any cost. This too we did know. Already in 1969 it was noticed that “[t]he powerful motive force behind the development of the throw-away container market is the fact that each returnable bottle displaced from the market means the sale of 20 non-returns²¹”.

Similarly, as discussed before, the promise of recycling as a durable solution to plastic waste goes around for decades (see 1.2.2 above). Here too, there is nothing new under the sun. Except that since recycling was first promised as a solution some 30-40 years ago, the total amount of plastic that has been produced has more than quadrupled²². And yet, **today as much as 20, 30 or 50 years ago we get lulled to sleep by reassuring statements about our ‘growing environmental awareness’ (2019) (see 1.2.2.2 above); about how “[n]owadays there is unprecedented awareness of the need to act more responsibly to protect our world for future generations²³” (2001); about how “the nineties are, indeed, the decade of environmental progress [...]”²⁴ (1992); or about “the current public concern about the environment and the spate of laws passed to reduce the pollution of air and water [...]”²⁵ (1973).**

4.3 PLASTICS, A HUMAN-MADE CRISIS THAT DOES NOT STAND ON ITS OWN

Just as we wish to *forget* how recent the plastic crisis is, we prefer not to see how it connects with many other socio-environmental problems. Yet, the links between, for example, plastic proliferation and climate change are numerous²⁶, as are those between plastic and toxic chemicals²⁷. And, the negative impact of plastic pollution on both aquatic²⁸ and terrestrial²⁹ life is by now well documented. But also the recent findings about the link between chemicals, including some widely used plastic additives, and obesity³⁰, strikingly show how everything is interconnected.

The plastic crisis, climate change, persistent pollution due to pesticides and other toxic substances, biodiversity loss, deforestation, or the obesity epidemic ... these are not disconnected issues. They are not caused separately and are not to be solved separately. They are brought about by the same basic problem. Each in their own way, they are the **result of continuous overproduction and overconsumption by a society – in Switzerland, in the Global North and increasingly worldwide – largely obsessed by always having more, focussed on economic growth and financial gain at any cost, and at the expense of everything else.** They are the result of us using more plastic than ever (see 1.1 above), of us buying more take-away than ever (see 1.3.1 above), of us driving bigger cars than ever (see 1.4.1 above), of us buying more clothes than ever (see 1.4.2 above), of us using more aluminium beverage cans than ever (see 3.1.1 above), of us flying more than ever³¹ and of us using more paper than ever (see 4.2.1.1 below). They are the result of our increasing environmental footprint, a rising share of which occurs abroad because our consumption more and more relies on the importation of goods (and food³²) produced elsewhere³³.

Indeed, “we are doing too much of almost everything, and the world’s living systems cannot bear it. But our failure to see the whole ensures that we fail to address this crisis systemically and effectively³⁴”.

“ **We cannot escape this inconvenient truth: in the end, only a systematic change in how (much) and what we consume will make a lasting difference.** ”

If we really want to solve the plastic problem (and, for that matter the other, interconnected socio-environmental problems), we cannot escape this inconvenient truth: in the end, **only a systematic change in how (much) and what we consume will make a lasting difference.**

A recurring argument is for instance that we need plastic packaging to prevent food waste³⁵. And, we are assured that compared to the food itself, packaging only has a limited share in the environmental impact of our food consumption³⁶. Yet, in practice, growing use of single-use packaging has developed alongside increasing food waste³⁷. The question, therefore, is why there is so much food waste³⁸ and why the food we eat today has such a high environmental impact³⁹. The issue at stake here is the globalised industrial food system and why it has become so reliant on single-use packaging⁴⁰. Justifying one problem (excessive – plastic – packaging) by another (food waste, due to an inherently wasteful food system) – both caused by the same **culture of overconsumption and profit-seeking at any cost**, is not the solution. The solution is changing this culture.

“ As long as technical fixes and innovations are but alleviating an otherwise increasing problem or just cause one problem to disappear by creating a new one, they are not real solutions.

In this regard, it should be clear that as long as technical fixes and innovations are but alleviating an otherwise increasing problem or just cause one problem to disappear by creating a new one, they are not real solutions. Taking new measure upon new measure to counteract an increasing number of environmental and health externalities^d caused by systematic overconsumption is not the solution. The solution is to stop this overconsumption. And, **as Switzerland, and Europe overall, are currently among those who overconsume the most, they also have to be among those who comparatively have to cut back the most.**

4.4 DISCUSSION AND CONCLUSION

“The plastic crisis, and public response to it, did not simply arrived in the world over the last few years. Since the 1970s, a number of social and environmental movements have tried to limit harmful plastic production and pollution^{41”.}

Indeed, **already long ago, society was aware of the problems resulting from growing, and increasingly single use plastic production and consumption.** Plastics are a recent problem, but we knew early on that it was, and increasingly would be if we didn't act. Also in Switzerland, interventions in the Parliament explicitly warned about it, critical voices expressed their concern in the public space while proposing alternatives, and people heard about it on television or could read about in their newspaper (see 4.1).

And yet, **in recent years, plastic continued to boom more than ever.** As did overall consumption levels. Despite all self-reassuring promises of sustainability, we essentially continue to use more of everything (see 4.2). This has put us in a situation of **multiple, interconnected crises.** In that sense, the plastic problem does not stand alone. It interconnects with many other of today's socio-environmental issues. These issues have common roots in an ideology of always more; in a society obsessed by economic growth and financial gain at the expense of everything else (see 4.3 above).

Therefore, to tackle the plastic problem effectively, its historical context – i.e., the warnings already issued when problems were not yet as big, and the ongoing increase in production and consumption – as well as its interconnectedness with other issues, must be fully recognised. And the **common drivers underlying these problems have to be acknowledged.** Doing so should make us understand why, as a precondition for any other measure to have real and lasting impact, **we need a cultural shift away from systematic overconsumption.** Doing so should make us accept that **we will have to live with less plastic,** and take actions accordingly.

^d Note in this regard for instance how in Switzerland the Federal Council recognises that already by the end of the 20th century it became clear that established measures were not sufficient to counteract the increase in plastic waste volumes and the associated negative environmental impacts, and how to date, further measures have therefore been adopted and implemented step by step. See: Der Bundesrat (Bern, 23. September 2022), *op cit.*, p. 36.

4.5 REFLECTIONS & RECOMMENDATIONS

- We have known about the problems of plastic for a long time → **We should stop thinking that only recently we became ecologically cognisant. Instead, we need to appreciate the real history of this issue, including when we knew about the problems related to plastic; when we were aware of plastic pollution and its effects on life; when we first warned ourselves that reduction is needed; when unworkable solutions were promoted; and viable alternatives became apparent.**
- The plastic issue does not stand on its own. It connects to many other socio-environmental challenges; from climate change to biodiversity loss or multiple health issues. → **To systemically solve these various problems, we have to fully recognise these interconnections, and acknowledge their common cause.**
- The common cause for the interconnected problems lies in our systematic, continuous, and still increasing overconsumption of everything, driven by an obsession of always more at the expense of everything else. → **For any other solution to have meaning, a country like Switzerland has to considerably reduce its current consumption levels.**
- Problems related to plastic are not just about technical solutions and better management. They are intrinsically linked to an inherently unsustainable way of life. → **To structurally solve the problems, this way of life will have to change.**
- It is time to really act upon our knowledge. → **Concrete actions have to start now, not in some years. In line with an overall decrease of our material use, such actions first and foremost have to be about reducing the production and consumption of plastic.**

ENDNOTES

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- 3 Motion by Albert Rüttimann, 11.06.1987 (87.442).
- 4 Parliamentary question by Helmut Hubacher, 06.03.1986 (86.607).
- 5 Promarca, Mitglied > Red Bull AG.
- 6 Igora.ch, Verwertungsquote Aluminium Getränkedosen; also: Igora.ch, Die Rücklaufquote für Aluminium Getränkedosen.
- 7 Cf. i.a. Plastics Europe, Plastics4Health – Part I, *op cit.*, Plastics today (20.04.2021), Plastics: Environmentally Friendly Before There Was Earth Day.
- 8 See: Centre for International Environmental Law (05.12.2017), Plastics Industry Knew its Products were Polluting Oceans by 1970s, Then Spent Decades Denying Responsibility and Fighting Regulation, and (2017) Plastic Industry Awareness of the Ocean Plastics Problem; also: Carpenter et al. (1972), Polystyrene Spherules in Coastal Waters. *Science*, 178 (4062); Journal de Genève (14.04.1983), p. 18: Plastique en mer (1) and Journal de Genève (16-17.04.1983), p.4: Plastique en mer (2).
- 9 Play RTS (06.10.1972), *op cit.*, 03'30''.
- 10 *Ibid.*, 15'30''.
- 11 *Ibid.*, 15'42''.
- 12 *Ibid.*, 17'56''.
- 13 *Ibid.*, interviews 20'02''- 21'16''.
- 14 *Ibid.*, 21'29''.
- 15 Infrastructures communales (2012), Coûts et prestations de la gestion communale des déchets, pp. 10-11.
- 16 *Ibid.*
- 17 Bundesamt für Umwelt (Letzte Änderung 10.05.2021), Abfall und Rohstoffe: Das Wichtigste in Kürze.
- 18 See: <https://www.reseauconsignes.ch/>.
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- 20 Play RTS (06.10.1972), *op cit.*, 18'25''.
- 21 U.S. Solid Waste Management Office (1971), First national Conference on Packaging Wastes. Proceedings. September 22-24 1969, p. 14.
- 22 See: Our World in Data, Cumulative global plastics production, 1950 to 2015.
- 23 Plastics Europe (2001), Insight into consumption and recovery in Western Europe- A material of choice for the packaging industry, p. 9.
- 24 Liesemer R. (1992), *op cit.*, p. 12.
- 25 American Society for Testing and Materials (1973), Disposal of Plastics with Minimum Environmental Impact, p. 1
- 26 I.a. Ford et al. (2022), The fundamental links between climate change and marine plastic pollution, *Science of The Total Environment*, Vol. 806, Part 1; Centre for International Environmental Law (2019), Plastic & Climate: The Hidden Costs of a Plastic Planet; also: Royer et al. (2018), Production of methane and ethylene from plastic in the environment. *Plos One*, 13 (8); Chandegara et al. (2015). Plastic Packaging Waste Impact on Climate Change and its Mitigation. In: Subbaiah R & Prajapati G. V., Water management and Climate Smart Agriculture Vol.III - Gyan Publishing House.
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- 28 I.a. Secretariat of the Convention on Biological Diversity (2016), Marine Debris: Understanding, Preventing and Mitigating the Significant Adverse Impacts on Marine and Coastal Biodiversity; also: Thushari & Senevirathna (2020), Plastic pollution in the marine environment. *Helyion*, 6 (8).
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- 35 I.a. Plastics Europe (2019c), [Plastic Packaging Saves Food](#); Plastics Europe (2012), [Plastic Packaging: Born to protect](#); Plastics Europe (2007b), [Plastics the material for the 21st century- packaging](#); also: European Commission (16.01.2018a), *op cit.*, p. 1;
- 36 Interpellation by Irène Kälin, 09.05.2019 (19.3484), answer by the Federal Council.
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- 38 See: [Food Waste in der Schweiz](#); Federal Office for the Environment (Last modification 29.09.2022), [Food waste](#).
- 39 Our World in Data, [Environmental impacts of food production](#); Notarnicola et al. (2017), [Environmental impacts of food consumption in Europe](#). *Journal of Cleaner Production*, 140 (Part 2); also: FoodPrint, [Food and the Environment](#).
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Solving the plastic crisis, concrete actions for Switzerland

SUMMARY:

Building on the issues elaborated upon earlier, this last chapter proposes a way forward to tackle the plastic problem in Switzerland. It shows the following:

- Solutions are available and known, but we must implement them and accept their consequences for our way of living.
- To really curb the plastic problem at a systemic level, a lot has to be done, both at a legislative and societal level.
- In Switzerland, many meaningful actions can be taken right now and within the current legislative framework. Doing so is in line with public opinion and expectations.

Given that Switzerland is a land-locked country, it is not directly confronted with the striking reality of marine pollution. However, as chapter 1 made clear, this does not mean that it should consider itself to be less concerned by the problems emerging from today's excessive plastic use. Nonetheless, as discussed previously, Switzerland often still seems to think that there is essentially just one key problem with plastic, and that is plastic waste, and this problem is then taken care of by burning it.

And yet, as the problems are multiple, the answers need to be as well. Incineration is not the all-in-one answer to plastic waste, and it is certainly not the answer to littered plastics or cigarette butts, to tyre wear and fibre shedding, or to intentionally added microbeads and liquid polymers. It is similarly not the answer to microplastics adding to the chemical cocktail in our waters, soils, and air. And, for that matter, neither is recycling, be it mechanical or chemical.

In this last chapter, attention therefore turns to possible solutions. Drawing on the challenges outlined in chapter 1, the legal settings described in chapter 2 and 3, and the reflections from chapter 4, it proposes measures to turn the tide on plastic in Switzerland.

Therefore, the **first actions** proposed under section 5.1 are about **stopping the use of unnecessary plastic wherever it can be avoided**. This first and foremost concerns take-away items, bags, and microbeads. These actions can be taken without changing existing laws and regulations and, therefore, could be implemented rapidly.

Then, to deal with the many plastic challenges in a systematic way, section 5.2 discusses the need for **clear definitions**: What do we consider plastic? What do we consider circular? ... Currently, many items escape attention because we overlook how they are (containing) plastic, or we do not consider them plastic although they actually are. And while there is increasing talk about circularity, it is often unclear what exactly is meant by this term.

Clearing out these definitions enables **further actions** in a coherent way. In this regard, section 5.3 looks in particular at reusable bottles, tyre wear, bioplastic, microfibres, cigarette butts, and liquid polymers. While these actions are urgently needed too, they require more political effort and organisational changes, because currently the necessary legislative basis to deal with them is missing.

5.1 FIRST ACTIONS

5.1.1 Invoke art. 30a Environmental protection Act

5.1.1.1 Stop disposable take-away food containers, cups, and cutlery

We consume a staggering amount of take-away food and drinks in Switzerland. This is a relatively recent phenomenon, but the trend is upward, as also shown during the recent pandemic. This produces a lot of avoidable waste (see 1.3.1 above). *Avoidable*, because a world could be easily imagined in which people, if they wish so, can enjoy take-away food and drinks, yet without all the waste this currently produces. The organisational and behavioural changes for those who consume or offer take-away are far from unsurmountable.

As touched upon before, the question is not just about replacing plastic by some other material. **What is needed, is a change in how we think and deal with disposable take-away packaging.** In this way we avoid false-solution-alternatives replacing one problem for another. Replacing plastic by ‘100% natural’, ‘biodegradable’ bamboo is not a solution¹. Replacing plastic by bio-plastic is not a solution (see 5.3.5 below). Replacing plastic by paper is not a solution. The consumption of paper and cardboard is steadily increasing too; packaging already takes the lion’s share of this increase; again, the Global North (Europe, North America, Oceania) has a comparatively excessive per capita consumption; and the environmental impacts of paper production are huge².

“ People had to learn – and be taught – to throw away, stopping disposable take-away packaging can be a first step in helping them unlearn this.

Obviously, **banning disposable take-away food and beverage packaging is a necessary-but-not-sufficient measure.** It should not stand on its own. Nonetheless, moving away from disposable packaging for take-away serves valuable objectives. It eliminates a considerable source of waste and littering. And, considering the omnipresence of take-away food and beverages in today’s society, it offers a visible example of change which can pave the way for other material-reducing shifts. People had to learn – and be taught – to throw away³, stopping disposable take-away packaging can be a first step in helping them unlearn this.

Invoking art. 30a of the Environmental Protection Act, a parliamentary motion by Delphine Klopfenstein Broggini in 2020 asks the Federal Council to prohibit the use of disposable containers, cups, and cutlery for take-away in Switzerland, independent of the material used⁴. The Federal Council rejects the motion. It justifies its position first of all by stating that reuse systems are already known and used at various places in the country, and these should further develop on a voluntary basis in agreement with the sector concerned. Furthermore, according to the Federal Council, a ban based on art. 30a letter a EPA represents a restriction of economic freedom for “retailers, take-away businesses and other providers” (tfG) in line with art. 27 of the Constitution. And, so it continues, in reference to art. 41a § 2 EPA, that a ban “*should only be issued if other measures - including those of the economy itself - are not sufficiently effective*” (tfG) and “*the economy must first be given the opportunity to become active itself with voluntary measures and industry agreements*” (tfG). Finally, it argues that cantons or communes are free to stipulate that food and drinks served at public manifestations taking place on their territory are offered in containers to be obtained against a deposit.

It appears that the reluctance of the Federal Council to use art. 30a EPA is a recurring aspect of its attitude towards the plastic and waste problem (see 2.3 above). Yet, the Council’s arguments are far from convincing. Essentially, the response is one of leaving it to others to act: cantons, communes, private initiatives, the market...

It is *nice* that cantonal and local authorities can oblige organisers of public events on their territory to ask a deposit for food and drink containers used at the event. And it is promising that cities like Basel, Berne, Fribourg, Lucerne or Sion⁵, and now also the canton of Geneva⁶, are taking initiatives. But this says nothing about the actual long-term reuse of these containers. And at best – even when applied countrywide and with the consistent use of genuinely

reusable containers – it tackles only part of the problem. It does nothing about the 112-123 million hot beverage take-away cups (see 1.3.1 above). It does nothing about the containers used for take-away purchased outside the context of a public event.

The fact that reuse systems are put in place is evidently a good thing. Yet, it is not clear how this discharges the federal level from acting. Initiatives such as *reCIRCLE*⁷ or *Zero Waste friendly Shops*⁸ are commendable projects. But to go from there to arguing that currently nothing more has to be done about the flood of disposable take-away items, takes things too far. While these and other initiatives clearly can help, the Federal Council does not elaborate on how much they have to date reduced take-away waste in absolute terms. The Government seems to suppose that the fact that such initiatives are launched solves, or at least will solve, the problem. Yet, as discussed before, what is important is not just that something is done, but that what is done has a real impact on the problem it intends to take care of (see 2.3 above). For these initiatives to become the standard of how take-away is consumed, the Federal Council should offer them a hand by formally banning the use of disposable items (containers, cups, cutlery...) for take-away food and beverages.

As to the possibility of self-regulation, this is repeatedly put forward by the Federal Council. Yet, it never seems to consider if such self-regulation is effective or how it means to assess such effectiveness (see 2.3 above). Also with regard to take-away containers, we are told that the economy should first have the chance to act. And only when such action would prove not sufficiently effective, could a publicly imposed ban be considered. But when would such voluntary measures and industry agreements be considered sufficiently effective? What are the objectives they must realise? Within what time frame? When would the Federal Council conclude that these actions are not enough and therefore imposing a ban is justified? These things we are not told.

The argument that a ban would conflict with the constitutional right of economic freedom is strange. As for all fundamental rights, the economic freedom (Art. 27 of the Constitution) can be restricted in the name of public interests (e.g., the protection of the environment) and proportionality considerations. Besides, providers of take-away beverages and food, precisely provide that: beverages and food. Banning the use of disposable items to pack these foods and drinks, in no way puts into question their basic freedom to bring their product to the market. The only one who could feel his freedom to be restricted is the producer of the packaging material; i.e., *'the other providers'* the Federal Council is talking about. And even here, these actors are not prohibited from exercising commercial activities as such, but only from placing on the market, *"products intended for once-only, short-term use"*, because *"the benefits of such use do not justify the harm to the environment that they cause"*.

The law cannot be clearer. It is therefore all the more difficult to understand the reluctance to apply it. The harm to the environment caused by the products in question is indisputable. The *benefits* of their use, on the other hand, only reside in an exaggerated interpretation of consumer convenience, and the profit of the packaging industry. First, as to consumer convenience, we should ask ourselves as a society if it is really an unsurmountable discomfort which would diminish our quality of life, if we were to bring along our own cup, container, and cutlery, or had to purchase reusable items – either taking them with us the next time we go for take-away or handing them over to the delivery person whenever (s)he comes around again. Where it concerns the profit of the packaging industry, do we think it acceptable that their benefit bears more weight than the harm to the environment and the cost for society caused by their products? Remember that already in 1969 it had been recognised that the main driver behind the development of the throw-away container market is the increasing sales that it brings for the producing industry (see 4.2 above). And indeed, in 2020 the European out-of-home packing market was expected to be worth €6bn⁹. The key question is whether we value this profit-seeking above the costs it creates for the society which afterwards has to deal with the harm caused by it.

Besides, as noted before, alternatives do exist. Of course, first of all we could ask ourselves if we really need that coffee-to-go. After all, 20 years ago, we did manage to live well without it. But, if then we want one, it is not a big effort to bring along our own cup. And for beverage providers – be it for hot or cold drinks – it is just about not having to bother anymore about a stock of cups and accepting people to bring their own. The same evidently goes for cutlery.

Maybe, things are a bit more complicated for food containers, but if people wanted to bring along their own box, that should be fine. This should become a generally accepted habit. **We got used to take-away, we can also get used to bringing along our own container or bag to put it in.** Of course, in the beginning, it could be unusual for food providers to find themselves confronted with containers in different shapes and sizes. But as long as it more or less fits the food a person is ordering, that should not be an impossible challenge, and after a while it's just a question of habit. Besides, instead of having large piles of disposable boxes, cups and cutlery behind the counter, food providers could equip themselves with genuinely reusable alternatives to be purchased against a deposit. For pizza boxes, with their particular form, this can be a workable solution. But also for other take-away, providers can use standardised boxes which consumers can afterwards return; either to the same place or to other restaurants offering take-away. Even for wrappings, alternatives are imaginable in the form of leaves and other non-transformed plant materials¹⁰.

The concrete form of these kind of reuse-systems is but a question of organisation. Is the return system nationwide or per region? Do all take-away food providers (have to) accept all types of containers, also those they do not use (for instance, a place not selling pizza is maybe not the right place to return a pizza box)? Do they have to accept non-washed containers? Do they organise things amongst themselves, or is it rather an external service, provided by another company? ...

Trickier is maybe what will be considered take-away. But even here, things can be quite simple. Every food or drink essentially prepared and commercialised with a purpose of immediate consumption away from the food-outlet, can safely be considered take-away¹¹. Coop in 2015 launched *Coop to go*¹² which on their website is clearly promoted as take-away¹³. But things like freshly prepared salad bowls sold in supermarkets, should also be considered as such.

True, these are questions to be answered. But it is not as if our society and economy do not deal with much more complex organisational issues. Of course, certain interests will see a profitable market disappear. But then again, **do we consider it acceptable to overproduce and overconsume just to serve the profit of a particular economic sector?**

Of course, the question should be asked if reusable items really have a lower environmental impact than non-reusable. This is a topic of much discussion. Life Cycle Assessment (LCA) – i.e., the method generally used to answer this kind of questions – can have its added-value when used with rigour and modesty. Yet, we should be aware that these studies can be – and often are – heavily biased. Repeatedly, they serve to back-up the interest of a particular producer by ‘scientifically’ showing (...) that its product is the most environmental⁹. Overall, many concerns exist as to how accurate LCAs are in comparing reuse vs single-use¹⁴. A main problem is that so far these studies almost completely ignore real human behaviour¹⁵. They fail to grasp how realistic or not their claims and conclusions are in real life. For instance, a study published in 2019 in the *Journal of Cleaner Production* found that extruded polystyrene take-away containers have the lowest impacts compared to reused polypropylene containers, unless the latter are reused 3–39 times. And the necessary reuse-rate for reusable “Tupperware” polypropylene food savers was found to be even higher, ranging from 16 to 208 times¹⁶. But, for these findings to have any relevance, the question is how realistic these reuse-rates are. That depends on both the material and the willingness of consumers to engage in reuse behaviour¹⁷, and also the willingness of the food-providers to participate in genuine reuse-systems. And even if currently these reuse-rates would seem high, the question is if they will be in a society which accepts reuse as the normal way to go. In that context, do we believe that it is unrealistic to use the same Tupperware 208 times (and much more); all uses included^b? That is, for take-away, at home food-storage, buying bulk-food items when grocery shopping, and so forth.

Indeed, reuse-items should be really reused. But that they are, is essentially an issue of reuse-habit and behaviour, and the existence of proper, well-developed reuse-systems.

a For notorious examples, see: European Paper Packaging Alliance (2021), [Single-use vs Multiple-use. Using Science to Challenge the Misconceptions and the convenient reference made to it by packaging producer Huhtamaki \(13.01.2021\), Why single-use packaging is better than reusable](#); or also: Stichting Disposables Benelux (2007), [Single use Cups are the winners! from an environmental perspective](#).

b In this regard, ReCircle for instance assures that when taken care of, their boxes, cutlery and cups can be reused hundreds of times; cf. ReCircle, [FAQs. Häufig gestellte Fragen](#).

Initiatives are under way to put into place such reuse-systems for take-away. For instance, the canton of Geneva intends to stop single-use articles in take-away catering¹⁸ and to put into place a deposit reuse-system¹⁹. These initiatives can serve as a guide for further nationwide action. But **such nationwide action could be served and accelerated by a clear push from the federal level** where the Federal Council has the authority and discretionary competence to use art 30a EPA to *prohibit take-away items intended for once-only, short-term use because their benefits do not justify the environmental harm they cause*. Therefore, this report urges the Federal Council to **invoke art. 30a letter a EPA to ban disposable take-away containers, cups, and cutlery**.

5.1.1.2 Stop disposable bags

Like take-away coffee cups (see 1.3.1 above) or cosmetic microbeads (see 1.4.3.1 above), plastic bags are a relatively new phenomenon. The modern lightweight shopping bag is the invention of Swedish engineer Sten Gustaf Thulin, and was patented worldwide by Celloplast in 1965²⁰. In Switzerland, they only appeared in the 1970ies²¹ and only in 1979 were they introduced outside of Europe, in the US²². Of course, contrary to disposable coffee cups or cosmetic microbeads, plastic bags do fulfil a function that goes beyond the mere creation of a new need and profitable market. After all, we need something to put our groceries in. But, has it to be something we only use for an estimated 25 minutes²³, then to be thrown away; at best to pack other things that we want to get rid of?

According to his son, Thulin had developed the plastic bag to help the environment²⁴. Indeed, it should not be overlooked that plastic shopping bags were introduced in the context of another environmental challenge. Since the middle of the 19th century paper bags became a common way to pack groceries²⁵. But of course, paper needs trees, leading to concerns about deforestation. Thus, a battle of the bags emerged²⁶. Be it pushed by the industry²⁷ or by *environmentalists*²⁸, plastic bags increasingly replaced paper. The battle is still ongoing²⁹. A simple internet browse presents us with many articles on the pros and cons of various alternatives³⁰ and the (dis)advantages of the one or the other material³¹. In this regard, some not only claim plastic bags to be the most viable alternative³², but even accuse *the environmentalists* of pushing in favour of paper bags³³.

“ To the question about paper vs plastic, the answer should be “neither”. For plastic bags just as for take-away packaging, the question is not about alternative materials. The question is about alternative systems.

Yet in reality, many environmentalists denounce the use of plastic bag bans to push for the reintroduction of paper³⁴. Indeed, **to the question about paper vs plastic, the answer should be “neither”³⁵. For plastic bags just as for take-away packaging, the question is not about alternative materials. The question is about alternative systems**. The above-mentioned inventor of the lightweight plastic bag is said to always carried one folded-up in his pocket and to him the idea that people would simply throw them away would be bizarre³⁶.

However, about such reuse too, a lot is said and written. Apparently, *“reusables made from cotton, woven and non-woven polypropylene bags require tens to thousands of uses before they become more environmentally efficient than single-use plastic bags³⁷”*. Or is it 131 times for a (non-organic) cotton bag and 11 times for a non-woven polypropylene bag³⁸? The point is, that **for reusable bags to be more sustainable than disposables, they have to be... reused** and this in a systematic and prolonged way. As we discussed for take-away items, this is a question of mindset and habit. **Changing our tote bag every year because it does not have the latest design, or because we lose it over and over again, is not a solution. Using it until it does no longer properly fulfil its basic function, is.** Of course, we should think about the material of our reusable bags: organic cotton instead of a conventional one, recycled cotton instead of virgin one, a locally produced material instead of an imported one. And why not reuse old post bags³⁹, or even human hair⁴⁰? If we do so, and then genuinely reuse them, they are viable alternatives for both disposable plastic and paper bags.

To help ourselves rapidly take both the practical and mental turn towards real bag reuse, a generalised stop for disposable bags is entirely appropriate. In Switzerland, this is what a parliamentary motion by Dominique de Buman asked at least for single-use plastic bags⁴¹.

As a counterproposal to this motion, the sector-organisations *Swiss Retail Federation* and *Detailhandel Schweiz* in 2016 presented a sector-agreement to reduce the consumption of plastic carrier bags (see 2.3 above). This agreement provides that the retailers voluntarily renounce the distribution of free of charge single-use plastic bags at shops where mainly food products are sold⁴². According to the sector's data this reduced the use of these plastic bags by 2018 by 86%, or 361,212,000 units, compared to 2016⁴³: in 2016, 417,781,000 disposable plastic bags were handed out, in 2018 the number had decreased to 56,569,000 units⁴⁴. In 2019, this agreement was extended. Signatory companies henceforth committed to no longer handing out plastic bags free of charge at all points of sale and throughout Switzerland. In addition to disposable bags, multi-use plastic bags are also included and, the scope was extended to non-food sales. According to the sector, thanks to the second agreement, consumption of multi-use plastic bags was reduced by 43.79% between 2019 and 2020, or 20,437,714 plastic bags⁴⁵.

While these are examples of voluntary measures – be it the only ones (see 2.3 above) – does this do enough?

First, although the partners to the agreements guard themselves from explicitly claiming that the numbers concern the total amount of plastic bags handed out in the country, this nuance seems to have got rapidly lost. Most media articles about the issue may well mention that the numbers relate to the partners of the agreement, on the whole, titles and article introductions give the impression that the decrease concerns plastic bags overall⁴⁶. And for instance, the RTS in a news broadcast from 21 June 2019, just states that “56 million plastic bags are still consumed every year in Switzerland [...]” (tff). Yet, considering that according to the list presented by the Swiss Retail Federation, 31 companies joined the agreement⁴⁷, there are obviously still many retailers who did not. For the second agreement on multi-use plastic bags, only 15 companies joined⁴⁸. Thus, while for instance the Swiss Retail Federation has a list of 57 members on display on their website⁴⁹, only 11 of them seem to have signed at least one of the agreements.

In light of the above, question remains what the real number of plastic bags used per year actually is? While no concrete data seem available for Switzerland, a European comparison can help give perspective. In line with Directive (EU) 2015/720, Member States since June 2020 report to Eurostat on their annual consumption of *lightweight* (i.e., common disposable plastic carrier bag with a thickness between 15 and 50 micron) and *very lightweight plastic carrier bags* (i.e., with a thickness of less than 15 micron, primary used as packaging for loose food)⁵⁰. If 56 million were really the number of disposable bags used annually, a per capita calculation would put Switzerland at the top of the European ranking. With a Swiss average of 6.6 lightweight plastic carrier bags per person, only Ireland, a country with a publicly imposed bag levy scheme since 2002⁵¹ would do better with 5 bags annually⁵². Actually, if the sector data were to represent the overall situation, already before any self-regulation was proposed in 2016, Swiss residents would have used notably less disposable plastic bags than many other Europeans did in 2019, i.e., after their country took legal measures towards their reduction in accordance with Directive (EU) 2015/720⁵³. *At the very least, that would be a particularly notable observation, deserving much analysis.* However, most plausibly, these data do not represent the real amount, and it is high time for Switzerland to find out what this total amount actually is. In all likelihood, it will be (much) higher than the numbers currently circulating.

Furthermore, it should be wondered if limiting the distribution of certain plastic bags for certain applications also really decreasing the number of plastic bags ending up in the environment? For the sake of convenience, it could be assumed that a decreasing distribution of plastic bags will equally reduce the number ending up in the environment. But are we sure about this? In the Swiss Litter Report from 2018, plastic carrier bags and pieces thereof still ranked 13th among the most found items. Little plastic bags such as those used for vegetables are at rank six⁵⁴. This last type of bags is assumingly more present among the littered items because of their relative smallness making them less apt for recovery by public cleaning services⁵⁵. Yet, these small bags are not covered by the sector agreements⁵⁶. And, regarding the first category, as pointed out before (see 5.1.1 above), we should incorporate behavioural and social aspects to understand if and how a measure is effective in producing a desired outcome. The key questions are **who are the people still using plastic bags and why, and how do they take care of the bag after use? What if the people still using plastic bags even if they must pay for them, are those who comparatively deal most carelessly with them anyway?** And what about the use of plastic bags in the growing take-away sector (see 5.1.1 above) not covered by the agreement? So far, these questions remain ignored.

Why not stop the use of plastic bags altogether, both larger carrier bags as well as little ones for fruit and vegetables, and in all kind of shops? Notably, the sector mentions two main reasons: convenience and hygiene.

First off, the 2016 sector agreement did not apply to so-called convenience stores, i. e. small shops, generally located in train stations and gas stations, with a limited assortment of mainly food items. While the agreement from 2020 closes this gap⁵⁷, and now convenience stores like for instance Migrolino also ask 5 cents per plastic bag⁵⁸, it remains interesting to consider the initial arguments for not doing so. These shops were excluded on the grounds that they are mainly about spontaneous, unplanned purchases for which there is practically no change in customer behaviour. At these shops customers would not take fewer disposable plastic bags even if they cost something, so the reasoning went. Besides, we were assured, only 10% of single-use plastic bags are handed out in convenience stores⁵⁹.

As to this last argument, we refer to our previous remark about how the number of plastic bags being handed out does not directly relate to the quantity ending up in the environment. Since convenience stores are arguably more frequented for out-of-home consumption⁶⁰, it does not seem too far-fetched to assume that plastic bags sold there will more frequently end up discarded. If the sector believes this not to be the case, they should have provided convincing arguments and data to show so. Where it concerns the fact that at these shops consumers would take the bags anyway, irrespective of them costing something; this is either an argument for making them cost more, or for prohibiting them, not for continuing to hand them out for free. Also, if consumer behaviour were not to change anyway, it is difficult to understand why, only four years later, the sector widens the scope of the agreement nonetheless.

This brings us again to the often-heard argument of consumer behaviour and convenience. Both are invoked over and over to rationalise consumption trends and the waste they create. Trends and habits are presented as if they are natural laws; not something that is guided very considerably and consciencely through marketing and sales strategies^c. Rationalised by an individualised fast-paced society in which we are apparently always on-the-go and do not have time to sit down to eat or to cook, **the dogma of convenience has become all-dominant**⁶¹. Instead of asking why we have this fast-paced society, if this is a good thing, and if we actually want it, we use it to continue justifying unsustainable actions.

Second, the agreements allow that “[w]here plastic bags are necessary for hygienic reasons or are used as primary packaging for open sales (e.g. for fruit and vegetables), plastic bags can still be given away for free” (tFG)⁶². But neither is it clear how it is more hygienic to take an apple or some broccoli from an open pile, only to put them in a flimsy plastic bag to transport them home, nor why such plastic bags should be needed for open sales. Indeed, fruit and vegetables can be put in reusable bags like those Migros now offers its clients⁶³. But also, certainly firmer fruits and vegetables like lemons or carrots can easily be put unpacked in the grocery bag. They will not less survive the way home. The same goes for socks or underwear, also cited by the agreements (art. 2). Yet again, it is mainly about habits. We do not put apples loosely in our grocery bag because we don’t do it, not because there is some higher rationale to it.

In conclusion, **the sector agreements do not sufficiently answer the key problems**. First, it is not clear how much they solve the initial problem of plastic bags ending up in the environment; as a direct link between reduced consumption and reduced littering cannot be automatically assumed. Second, they do not tackle the underlying throwaway-culture as such, they just make it slightly more expensive for the consumer. Against a fee, consumers now can choose between plastic bags and paper bags. How many are brought to a profound behavioural change towards real reuse because of this is unclear. Third, the measures cover but one type of disposable bags and only one material. And the sector apparently did not feel the need to go any further.

If we really want to tackle the multiple problems related to both the production and end-of-life of disposable bags, things have to go much further. **Just as for take-away items, art. 30a letter a EPA should be invoked to prohibit bags**

^c Of course, observe how this was already denounced more than 50 years ago. For instance, at the First National Conference on Packaging Wastes, organized in the U.S. in 1969, the environmental advocate Alfred Heller noted that “the industry will have to find someone other than the consumer to hide behind”, and “let us face it, the consumer buys what he is offered and what he is offered is designed and marketed so as to make him buy as much of what he is offered as he can afford to buy, and more” – see: U.S. Solid Waste Management Office (1971), *First national Conference on Packaging Wastes. Proceedings. September 22-24 1969*, p. 52.

which are essentially intended for once-only, short-term use on the grounds that their benefits do not justify the environmental harm caused. Again, to do or not do so is not a question of feasibility or legality, it is a question of societal and political choice; even more so as viable alternatives are readily available.

Such an end to disposable bags, combined with an honest change towards reusables, (as is the case with take-away items), can help us see what a different way of consumption could look like. **Changing to reuse for these simple items can put us on the path to more in-depth changes in how (much) we consume.** For instance, by contrast, it could make us more aware of the growing amount of packing due to our increasing habits of online shopping⁶⁴.

5.1.2. Ban microbeads from Personal Care and Cosmetic Products

In Switzerland, *“the Federal Council [does] not consider it advisable to lay down regulations concerning the use of microplastics in body care products before the EU [complete] its clarification work and the European Commission [adopts] measures to this end⁶⁵”* (tfG). The EU is indeed in the process of doing so, but this process is cumbersome, expected to still take time, and probably will have limited output (see 3.1.2 above).

Of course, it is reasonable for Swiss federal authorities to monitor EU chemicals legislation in order to harmonise Swiss legislation with that of the EU *“to avoid barriers of trade⁶⁶”*. However, considering how things are going at EU level, it is doubtful that this will also *“ensure a high level of protection for man and the environment⁶⁷”*. Therefore, **Switzerland should dare to be more courageous. It should follow the examples of other countries in taking stronger action,** including EU members like Ireland, Italy, France, Sweden, and The Netherlands⁶⁸, and not hide behind what is done (or not) at EU level.

As the examples of EU Member States show, the absence of Europe-wide measures does not mean that individual countries are prohibited from taking action. As a *Regulatory Impact Assessment* prepared by the Irish *Department of Housing, Planning and Local Government* explains, *“[p]rohibiting certain products containing plastic microbeads would have implications for the principle of free movement of goods within the European Union. Ireland will need to seek derogation from the EU Commission in accordance with single market requirements, on environmental grounds⁶⁹”*. Indeed, the Treaty on the Functioning of the European Union (TFEU)⁷⁰, art 36, lists the defences that could be used by Member States to justify national measures that impede cross-border trade, including the protection of health and life of humans, animals or plants⁷¹. A similar provision is provided by the free trade agreement between the EU and Switzerland, art. 20⁷². Also the WTO will have to be notified of any intention to restrict the free movement of goods in line with the General Agreement on Tariffs and Trade (GATT). Yet here too, exceptions exist which allow a country to *“adopt policy measures that are inconsistent with GATT disciplines, but necessary to protect human, animal or plant life or health [...], or relating to the conservation of exhaustible natural resources [...]”⁷³*. Overall, it may be maintained that **if States prepare their argumentation well, they can justify unilateral regulations on microbeads⁷⁴**.

Of course, to do so, national authorities have to recognise the problematic character of microbeads. In Switzerland this still seems not to be the case. As noticed before, regarding microbeads, the Federal Council in its answers to parliamentary interventions (see 2.3 above) repeatedly uses the science-is-not-yet-in argument to oppose a ban. And for the time being, Swiss authorities are relying on independent measures by the industry in order to eliminate the use of microplastics which lead to inputs into the environment, if possible⁷⁵.

For the multiple reasons elaborated upon before (see 1.4.3 above), this is no longer tenable:

- Even the best Wastewater Treatment Plant does not filter out all microplastics, and microplastics from PCCP are dominant among those still present in WWTP effluent.
- The PCCP sector is dragging its feet; many measures are essentially window-dressing.
- Alternatives do exist (and always have).
- And most importantly, it was known, and we were warned early on that putting microbeads into personal care and cosmetic products was *not a good idea*. The science has been in since the beginning!

Therefore, **based on the Environmental Protection Act, there are no arguments for not dealing with this.** Microbeads indeed are “substances [composed of] manufactured chemical elements and their compounds [or] preparations (mixtures, blends and solutions) and articles containing such substances” (EPA, art. 7 (5)) which may induce “harmful effects or nuisances [for] people, animals and plants, their biological communities and habitats, [or for] the natural foundations of life sustainably, in particular biological diversity and the fertility of the soil” (EPA, art. 1). Even without an encompassing definition of plastic, it is clear that ‘substances’ here applies to (products containing) microbeads.

Besides, according to the EPA, art. 26, “[t]he putting into circulation of substances for uses where, when handled correctly, they, their derivatives or waste may present a danger to the environment or indirectly endanger people is prohibited”. Given that microbeads leak out in the environment even with the best filtering system and, considering what we know about their accumulation and the possible ‘cocktail effect’ (see 1.4.4 above), it is clear that, even when handled correctly, they may present a danger to the environment and so to people.

Also the Chemicals Act could be invoked. This law aims “to protect the lives and health of human beings against harmful effects arising from substances and preparations” (ChemA, art. 1) which “are capable of presenting a hazard to life or health as a result of physico-chemical or toxic effects” (ChemA, art. 3 § 1). In this regard, it is “[t]he Federal Council [who] shall specify the properties deemed dangerous and define categories of danger” (ChemA, art. 3 § 2). The accumulation of microbeads into the environment indeed presents such a hazard which through the chain of life is also harmful to humans. We often tend to forget how we humans are part of the environment. Even if this might be a delayed process not yet fully visible, biodiversity loss through the accumulation of (micro)plastics in the environment is eventually impacting us too and not just in some far-away future.

“ The issue is not one of feasibility or legality, or of scientific debate. It is a philosophical and political one. It is about what kind of society we want. One which always runs behind problems caused by an ideology of always wanting more, by profit-seeking at the expense of others? One which waits to recognise a problem because precaution would create an uncertain climate for investment ? One which believes us humans disconnected from the rest of nature? Or, one which recognises that profit and progress should not be a free pass for acting against the health of the environment and the people part of it?

Again, the issue is not one of feasibility or legality, or of scientific debate. It is a philosophical and political one. It is about what kind of society we want. One which always runs behind problems caused by an ideology of always wanting more, by profit-seeking at the expense of others? One which waits to recognise a problem because precaution would create an uncertain climate for investment⁷⁶? One which believes us humans disconnected from the rest of nature? Or, one which recognises that profit and *progress* should not be a free pass for acting against the health of the environment and the people part of it? The many examples of delayed actions for years and decades – tobacco, pesticides, asbestos, climate change ... – because the science was considered *not in* (that is, continuous controversy is kept alive by interests opposing action, by spreading doubt and confusion often after scientific consensus actually had been reached⁷⁷; a strategy used over and over again⁷⁸), **should make us wonder how we could justify waiting to prohibit synthetic microbeads in personal care and cosmetic products.**

5.2 CLEAR DEFINITIONS

5.2.1 The definition of plastic

What do we mean by plastic? Currently, Swiss law does not specify this. This leads to many uncertainties about what products are considered to be made from or containing plastic. For many types of take-away containers, plastic bags, or PET bottles it might be clear that they are, but for other products things are more confusing.

As we saw under 1.1, data about plastics do not incorporate many products which actually do contain plastics. As objects such as synthetic clothes or tyres are linked with unintended leakage (see 1.4.2 above), not taking them into account when talking about plastic obviously hinders a full understanding of the challenges we face. And, as the case of the EU shows, the absence of a clear definition creates ambiguities undermining the efficiency of a policy intended to comprehensively tackle the multiple plastic problems (see 3.1.3 above).

Therefore, an encompassing definition of plastic is needed; including liquid polymers, nano plastic, microplastic, fibres, ... but also the issue of plastic debris⁷⁹. Developing such a definition will help to grasp the problem more comprehensively and to know better what we are talking about.

For it to have real impact, such a definition should be introduced in the law. In Switzerland, this could be done as an amendment to the Environmental Protection Act, under art 7 about definitions, or in a separated legal act serving as the basis for an integrated plastic policy. But, obviously, also within international fora, Switzerland should actively participate in the development of a comprehensive definition of plastic.

It should not be underestimated how determinedly those who feel that their private economic interests and financial profits might be limited even slightly, will do everything to delay and derail any attempt to really tackle the plastic problem. Besides, coming to clearer terms about what exactly plastics implies as a material, will not change much if its production and consumption (and for that matter of any other material) continues to increase as is *expected* (see 3.1.3 above). Nevertheless, **a clear definition about plastics is a fundamental step in achieving a sound and comprehensive policy able to curb the many externalities intrinsically connected with the production and consumption of plastics.**

5.2.2 The definition of circularity

As noticed before, circularity has become the new incantation of the plastic industry. Yet, as such, it is just newspeak for the decades old promise of recycling (see 1.2.2.2 above). The circular plastic economy, apparently, *“aims to address the problem of plastics waste⁸⁰”*, while at the same time being *“instrumental in the next phase of the oil industry’s growth⁸¹”*. But how that works; how something can be circular and growing at the same time, we are not told (see 3.1.3 above). Over and over again we are assured that the *“circular economy for plastics [is] essential to a more sustainable future⁸²”*. But it is never explained how a world in which *“[b]y 2035 chemicals will account for almost all oil demand growth [and] [a]pproaching 2040 [...] chemicals [will be] almost 20% of total oil demand⁸³”*; a world built on the polluting extraction of non-renewable resources, can ever be circular and sustainable.

Therefore, a clear definition of ‘circularity’ is urgently needed. Over a short time^d, circularity has become a popular concept. In general, however, **what is meant by a circular economy is only vaguely explained and, likewise, how it will really contribute to a world where we humans reduce our excessive impact on the rest of the planet; not just as a concept, but in practice.** For instance, neither the EU Action Plan for a Circular Economy (2015)⁸⁴, nor the new circular economy action plan (2020)⁸⁵ adopted under the European Green Deal give any definition of ‘circular economy’. Notably, they continue to talk about economic growth, but never explain how such growth can ever go together with circularity (see 3.1.3 above). Similarly, the Charter of *Circular Economy Switzerland*⁸⁶, mentions that the import of resources, materials or products should be considered, but not what that actually means for a country whose consumption is increasingly produced abroad (see 4.1.3 above).

The problem with the circular economy concept is that the number of different definitions is countless⁸⁷. **While circularity should be built around the 4 R-hierarchy of reduction, reuse, recycling and recovery; a large share of definitions does not contain a waste hierarchy.** And even more telling, recycling has been found to be the most

d Notably, this recent and steep ascent of the circularity concept can be observed very neatly through academic articles, with a more than ten-fold growth in the annual number of publications on the Circular Economy in the last 10 years (Geissdoerfer et al. (Journal of Cleaner Production, 2017), [The Circular Economy – A new sustainability paradigm?](#)). And, on Google Scholar, the first article mentioning “circular economy for plastic” dates only from 2016, while 216 out of 314 articles containing this exact phrase are published since 2021. (Based on a Google Scholar search carried out on 23.08.2022. Searching for “circular economy for plastic”, 314 results were given. Selected per year of publication, this gave the following result: 2016 – 1; 2017 – 7; 2018 – 6; 2019 – 19; 2020 – 60; 2021 – 120; 2022 so far – 96.)

common component in the large majority of definitions⁸⁸. This corroborates with our earlier observation about the EU's circular plastic strategy (see 3.1.3 above). Similarly, the EU strategy also exemplifies how the most prominent aim in Circular economy thinking is to assure economic prosperity and boost growth. Rather than putting economic prosperity in balance with environmental quality and social equity as part of a holistic view, so far, circular economy thinking is mainly oriented towards the first⁸⁹. As we see from supporting statements on the website of Circular Economy Switzerland, many indeed still see the change to circularity first of all as an opportunity to improve companies' competitiveness, to create jobs and prosperity, and to reconcile growth and sustainable development⁹⁰.

Public authorities should help reduce this confusion about circularity. By proactively defining what circularity means to them and setting out the general framework of a circular economy, they could halt the proliferation of circularity claims. The EU for instance, while not doing so in the context of its plastic policy (see above) gives such a definition in its 'Sustainable Investment regulation'⁹¹. In this regulation under art. 2 (9), the circular economy is said to mean *"an economic system whereby the value of products, materials and other resources in the economy is maintained for as long as possible, enhancing their efficient use in production and consumption, thereby reducing the environmental impact of their use, minimising waste and the release of hazardous substances at all stages of their life cycle, including through the application of the waste hierarchy"*. Another interesting example in this regard is the French circular economy policy⁹² based on a roadmap launched in 2019⁹³.

In Switzerland, the Federal Council follows closely these French developments⁹⁴, but so far specific measures are still missing⁹⁵. Promising, nonetheless, is the recognition that so far, circular economy models in Switzerland have been mainly concerned with waste management⁹⁶. In this regard, meaningful action can be taken by making existing laws less ambiguous. First, this means that **art. 30 EPA should be more explicitly framed within the logic of circularity**. While formally there is a waste hierarchy (see 2.2 above), art 30 EPA should make indisputably clear how the order of things is first and foremost about 'avoidance' through non-use and reuse, and only then, if really not otherwise possible, recovery through recycling and in last resort incineration. Similarly, **also the Waste Ordinance, being notably confusing on this point (see 2.2 above) has to be revised accordingly**. And, considering that a proper circular economy has to avoid that toxic substances, such as hazardous plastic additives, remain or are brought into reused and recycled materials and products⁹⁷, also chemical legislation (Chemical Act, Chemical Ordinance ...) has to be looked at and where needed adapted. In line with these legislative amendments, federal authorities should deliver on their promise for concrete measures to create a circular economy. These measures must be based on a clear definition of what this circular economy is about.

5.3 FURTHER MEASURES

Comprehensive definitions of plastic and circularity can help us deal more systematically with plastic-related problems by creating a basis for an integrated framework of action that also addresses other plastic issues and propose solutions to take care of them. This concerns among others, the revival of reuse bottles and other packaging materials, tyre wear, microfibres, cigarette butts, bioplastic, or liquid plastics.

5.3.1 Stimulate reuse

As discussed for take-away and disposable bags (see 5.1.1 and 5.1.2 above), valid reusable alternatives do exist. But whether they are used depends of our willingness, as well as of a context allowing and stimulating us to do so. This goes for other packaging too. **Reuse should again be the norm wherever reasonably possible. What is reasonably possible, however, depends on both mindset and practical organisation.**

To make reuse a valid alternative, it should of course be considered as such. For instance, current comparisons about the environmental footprints of different materials or waste solutions little consider the reuse option (see 1.2.1 above) and when they do, they do not elaborate on how reasonable a certain reuse rate might be (see 5.1.1 above). This has to change. In our common and individual mindset, **reuse should be the default setting of a truly circular economy** (see 5.2.2 above); the baseline to which other options are evaluated.

Yet, this mindset does not stand on its own. If what you can buy by weight remains limited, you are getting nowhere. Currently, buying by weight or in reusable packaging remains still too much of a niche. Of course, multiple initiatives do exist⁹⁸ and supermarkets offer some limited assortment of products in bulk⁹⁹. However, this seems to be for the rather better-off public¹⁰⁰. Overall, buying without disposable packaging is still too cumbersome and the availability too limited to create a decisive turn towards it. To turn this around, **structural change is needed, including at the level of legislation and public policy**. As the ‘Making reuse the norm in Europe again’-campaign points out, “[i]ust like you cannot run trains on roads, you cannot run reuse in a system designed for single use¹⁰¹”. Indeed, “[i]t’s time to **#GetBack** to the good reuse practices that preceded the boom of single use packaging [...]”¹⁰².

In addition to take-away and bags, attention should therefore go to upscaling packaging reuse overall. In this regard, a starting (but not an end) point could be bottles and jars.

While for a long time being a normal practice, the reuse of packaging has become an exception. Considered a small revolution facing many practical difficulties in the 1960ies¹⁰³, disposable packaging has gradually come to replace previous reuse systems.

Notably, still in 1986, the Federal Council declared that “[a] decline in the reuse systems, which are well established in the beverage sector, is undesirable because of the increasing amount of waste and the environmental pollution involved in the production and disposal of single-use packaging. Reusable packaging is undisputedly far superior to disposable packaging in almost all cases, both in terms of energy and material consumption as well as environmental pollution. This also applies taking into account the transport and cleaning of the empty containers. Measures and regulations must therefore primarily ensure that the largest possible proportion of beverages will be purchased in reusable containers in the future¹⁰⁴” (tfG). And “being concerned about the growing amount of disposable packaging, especially for beverages”, acting federal president Alphons Egli does not hesitate to call it an “abuse¹⁰⁵” (tfG). It was all for nothing. Under pressure from the retail, beverage and packaging industries, the chance was lost¹⁰⁶ and disposable packaging continued its ascent.

Of course, remember how already in 1972 people argued that it was better for the environment to stay with a well-developed reuse system, yet we did not listen (see 4.2 above). And the reasons are economic. When in the above-cited documentary another water bottler is asked why he changed to plastic bottles, his answer is simply that “it is essentially about staying competitive faced with the invasion of French waters which have chosen this packaging which brings them a strong asset, because the longer the transport the more disposable packaging has advantages¹⁰⁷” (tfF).

This is an essential point. Environmentally speaking, reusable glass bottles do not make sense when the transport distance exceeds 230 km¹⁰⁸. But of course, **question is, how much we need drinks bottled more than 230 km away?** What is the sense of bottled water being shipped around the world¹⁰⁹? Of Volvic water sold in Switzerland¹¹⁰; at least 329 km (Volvic- Geneva) by road? Of Evian water sold at the airport of Kathmandu¹¹¹; more than 8000 km by plane? The same goes for many other drinks. Why do we need wine from California¹¹² and California wine from Switzerland¹¹³? Why do we need beer from Australia¹¹⁴ and Australia beer from Belgium¹¹⁵? And if we believe we do, would it be illogical to incorporate the environmental footprint of our purchase in its price?

Just as for bags, an internet search brings us a flood of good advice on how much reusable options match (or not) disposable ones. Yet, most of it compares options in a technical way, but gives little or no consideration to the distance that a product travels. They might mention that it is a factor to consider, but they do not question the reasonability of the distance for instance a simple water bottle currently travels. Thus, they fail to grasp how, **yet again, the issue is not purely a technical one**. When comparing different types of bottles within the given situation of a globalised food system, where food and drinks are shipped criss-cross around the planet, single-use plastic bottles probably will come out best. But the question is **why we should consider this globalised food system, essentially driven by profit-seeking more than by feeding people, as the desirable normal**. Again, everything is connected. Going reuse indeed means going local. We should dare to wonder if, and why, that would be a bad thing.

All this is not a call for prohibiting people from sometimes consuming something from far away. It is a call for moderation and reason. It is a call for stopping to put an economic logic above everything else, at the expense of everything else.

As said, to make things concrete, **a starting point can be to revitalise reusable glass bottles.** In this regard, Swiss authorities should live up to their own words from not even forty years ago and take measures to ensure that the largest possible share of beverages is sold in reusable containers. The Beverage Container Ordinance could offer the legal framework to do so. **For the moment, the BCO does not contain any order of preference as to the type of beverage containers (refillable vs non-refillable). This has to change.**

In reference to this ordinance, the *Swiss Association for environmentally friendly beverage packaging (SVUG)*¹¹⁶, an industry association bringing together the beverage industry and recycling organisations may well promote recycling as the preferred environmental solution; as discussed, this is strongly dependant of the distance a bottle has to travel. This should be recognised in the BCO, and **measures should be taken to stimulate short supply chains, making reusable bottles a viable alternative.**

5.3.2 Tyre wear

Without resolute measures, the tyre wear problem can be expected to increase (see 1.4.1 above).

Investment in improving asphalt design, water run-off-collection, or tyre manufacturing¹¹⁷ and developing tyre wear capturers for cars¹¹⁸, as well as changes in tyre standards¹¹⁹ could all be part of a solution. Yet, this will not give us a conclusive answer to the problem. **If these technical solutions are just to alleviate an otherwise rising amount of tyre wear due to heavier cars (see 1.4.1 above) and continuously increasing distances travelled on Swiss roads¹²⁰ in a country with one of the highest motor vehicle rates per capita¹²¹, they are but sticking a plaster on a wooden leg.**

Of course, regarding the current trend for bigger cars, *“the [car] industry feels legitimised [because] the market is responding to a demand¹²²”* (tFF), and *“consumers, for their part, are approving SUVs¹²³”* (tFF). In reality, however, most people do not buy an SUV because they need one, but because the car industry is telling them they do¹²⁴. The idea that *“we need these vehicles because they respond to the morphology of the terrain; because they correspond to the country where we live, with mountains, with countryside, with small towns, [...]”*¹²⁵ (tFF) is ludicrous. The Alps may well cover two-third of the Swiss territory, only one tenth of the population lives there¹²⁶; 83% lives in an urban environment¹²⁷. Adding to this that Switzerland has a comparatively dense railway network¹²⁸ and the country’s good public transport is one of its recurring selling points¹²⁹, the idea that the morphology of the Swiss countryside and small towns would require the use of bigger cars is just incomprehensible.

“ Taking care of tyre wear is not just a technical issue, but a question of political will and societal change.

Nonetheless, **so far, the Federal Council, mainly focusses on technical fixes to limit tyre wear¹³⁰. This has to change.** Stopping the importation of cars weighting 2 tons or more¹³¹ seems radical, but why not? And what other measures could decrease the number of cars and the distance they travel per person? In 2019, on Swiss roads a car on average transported 1.62 passengers¹³², and 46% of car trips in the country are less than 5 km (9% even less than one km)¹³³. **In no way is that a sound manner of transportation.** To structurally tackle tyre wear we must deal with these issues too. We have to change our transport habits by accepting that big is not better, and changing to other, less impacting means of transportation¹³⁴. In that sense, **taking care of tyre wear is not just a technical issue, but a question of political will and societal change^e.**

^e In this regard, we do not agree with IUCN deputy director François Simard statement that where microbeads in cosmetics could be replaced, and improved sewage treatment could intercept microfibres from laundry, for tyre wear *“we do not know how to do it [...] it’s not just a question of political will”* (tFF); Le Figaro (22.02.17), *Comment nos vêtements et nos pneus sont devenus des polluants majeurs des océans.*

5.3.3 Microfiber shedding

Just as for tyre wear, so for microfibres we should recognise the real nature of the issue. Looking at the different sources of microfibre shedding through washing, drying and wearing of clothes (see 1.4.2 above), it is true that the first two sources of emission could be managed through technical solutions such as improved filters¹³⁵ or Guppyfriend washing bags¹³⁶, while the last one could possibly be reduced by changes in clothing design and manufacturing¹³⁷. Well-defined ecodesign requirements such as those currently thought about in the EU for both washing machines¹³⁸ and textiles¹³⁹, could help set standards for such technical improvements.

However, **if these solutions are but slowing down an overall increasing stream of synthetic microfibres, due to accelerating consumption¹⁴⁰ of new clothes^f, they just present a momentary reprieve but do not systemically take away the problem.** Besides, these technical fixes do nothing about the many other problems created by the overproduction and- consumption of textiles (both natural and synthetic)¹⁴¹.

It is of course good if 93-98% of MP can be filtered out of wastewater¹⁴² and the proportion of microplastics entering the environment from textiles is therefore greatly reduced with the existing wastewater treatment processes¹⁴³. Yet, *“despite of the high removal performance, even an advanced WWTP may constitute a considerable source of microlitter and microplastics into the aquatic environment given the large volumes of effluent discharged constantly¹⁴⁴”*. According to the Federal Council, today, up to 80 tonnes of microplastics per year are released through the washing of textiles in Switzerland¹⁴⁵. If only 5 % thereof ends up in the aquatic environment, that is still 4 tonnes annually. And, especially as the amount of MP getting into the wastewater continues to increase, such proud percentages obfuscate the fact that the quantity ending up into the environment eventually will grow too. Besides, how can we be sure that the remaining leakage of microplastics does not continue to cause considerable damage? After all, increasing evidence indicates that lower doses do not always mean less toxicological effect¹⁴⁶ and, once released into the environment, chemical substances can interact with others present there, creating hitherto unexpected impacts (see 1.4.4 above).

Considering all this, and without ignoring technical measures, key action lies in reversing the trend of ever more new clothes, increasingly made from synthetic fibres, and worn for a decreasing amount of time (see 1.4.2 above). Regrettably, the *Sustainable Textiles Switzerland 2030* program (STS 2030)¹⁴⁷ which engages key actors of the Swiss textile and clothing sector and is supported by the State Secretariat for Economic Affairs (SECO)¹⁴⁸ at first only addressed this in evasive terms and then, at a later stage, even seems to back out on this altogether. In a previous version of their *Targets*, which appears no longer to figure on their website, but of which we kept a copy¹⁴⁹, the program’s third target still provided that *“[b]y 2025/2030, new textile materials used to meet consumer needs in Switzerland are reduced by a total amount of 16%/30%”*. However, among the measures through which to realise this, there is only vague talk about *“designing circular products and stimulating reuse”* by producers and consumers. As to the current version of their *Targets*¹⁵⁰, they no longer mention any material reduction. Target 3 *‘for the Swiss textile and clothing sector’*, now just tells us that *“[b]y 2030, at least 30% of products in the Swiss textile and clothing sector are designed according to circular economy principles”^g*. Thus, at no point does the program seem to recognise that **the current consumption of clothes in Switzerland is simply unsustainable**. Yet, such a recognition is an indispensable precondition for any meaningful set of actions to take care of microfibres in the environment. In this regard, **Swiss authorities should no longer lose time by gathering more evidence about microfibre leakage, an issue about which sufficiently is known by now to know that it is a problem. They should acknowledge the problem’s real origin and act accordingly.**

f Multiple studies indicate that textiles release more microplastics during first washes, with decreasing quantities over subsequent washes. Cf. Almroth et al. (2017), *Environmental Science and Pollution Research*, 25; Napper & Thompson (2016), *Release of synthetic microplastic plastic fibres from domestic washing machines: Effects of fabric type and washing conditions*. *Marine Pollution Bulletin*, 112 (1-2), Figure 3; Pirc. et al. (2016), *Emissions of microplastic fibers from microfiber fleece during domestic washing*. *Environmental Science and Pollution Research*, 23, Fig. 2. ... For the good order, note of course that the industry conveniently comes to the opposite result for their products; cf. Bruce et al., *Microfiber pollution and the apparel industry*, the client of this report is Patagonia, cf. also: *Microfiber Pollution & The Apparel Industry*.

g Also more generally, it seems that the *Targets* current version corrected the program’s initial ambition. For instance, also under Target 3, we were initially ensured that *“[b]y 2025/2030, 70%/100% of the Swiss textile and clothing sector apply a chemical management system as provided by ZDHC or equivalent”*. While a lot of questions can be asked about ZDHC as such – see: Changing Markets (20022), *License to Greenwash: How certification and voluntary initiatives are fueling fossil fashion* – at least it provides some external scheme against which to assess commitments. However, in the later version of the *Targets*, *“[c]ommitted actors”* but have to *“implement a chemical management system for their supply chain to protect biodiversity by 2025”*. Other targets are reset from 2025 to 2030.

5.3.4 Cigarette butts

As discussed before (see 2.3 above), in answer to a motion by Niklaus-Samuel Gugger about the environmental harm caused by cigarette butts, the Federal Council refrains from action on the ground that, so far, the specific effects of cigarette butts for the environment have not been adequately documented. This is a curious line of defence for Switzerland's ongoing inaction on the issue. **As much research elaborately shows, cigarette butts are an important source of microplastic pollution with many adverse environmental impacts** (see 1.3.2 above).

Just as for microfibers, there is no reason not to comprehensive deal with this right away. And, mere public awareness raising will not be enough.

Cigarette butts are a telling example of a cynical cost-externalisation. An industry generating huge profits¹⁵¹ by selling a product directly causing the death of 7 million people each year worldwide¹⁵², of which 9,500 are in Switzerland¹⁵³, arguably does not care for the least about the further damage their product creates even after its consumption. And in Switzerland, authorities seem to prefer reflecting about the economic importance of the tobacco industry for the country¹⁵⁴, more than about the suffering and damage it creates.

A change is needed. As a start, Switzerland should in line with the EU SUP-directive (see 3.1.2), art. 8, ensure that cigarettes are covered by **extended producer responsibility**. Cigarette producers should be made financially or even physically responsible for the treatment or disposal of their products. Currently, EU Member States like France¹⁵⁵ have already put in place such an EPR scheme for cigarettes, and for instance in The Netherlands in March 2022 two parliamentary motions were accepted by the House of Representatives about the matter. One charged the Government to examine how to realise a 70% reduction of plastic cigarette filters by 2026, and the other even ordered an outright ban¹⁵⁶. And also in the UK – be it that the process might be confronted with much delay¹⁵⁷ – the Government is exploring next steps to clean up tobacco litter in England, including an extended producer responsibility scheme for cigarette butts¹⁵⁸. Switzerland should have the courage to follow these countries' example.

Obviously, also, **reducing the number of smokers would help.** A non-smoker does not throw away a cigarette butt. Considering that one in four Swiss of 15 years or older smokes¹⁵⁹, succeeding in bringing that number down would be a win-win on multiple fronts. Furthermore, do we really want to be a country which gets about 1% of its gross domestic product¹⁶⁰ from something which is the single most preventable cause of death and disease¹⁶¹. Tobacco creates jobs and the sector generates considerable taxes revenues¹⁶², but do we want to be a society which conscientely builds its prosperity (even just for a part) on the damaged health and death of people and nature?

Yet again, many issues turn out to be connected. **Microplastic pollution through cigarette butts connects and interacts with the many other problems caused by tobacco consumption.** Only by tackling them in full recognition of their common origin – our continuous obsession with profit seeking and financial gain irrespective of the externalities – will we be able to really solve them.

5.3.5 Bioplastic

The promise of a compostable, biodegradable, and non-polluting plastic goes back for decades. Subscribers of the *Gazette de Lausanne*, could read in 1970 how “[p]ollution of the natural environment from discarded plastic containers and packaging is a growing problem in many countries¹⁶³” (tFF), but luckily, “[a] new type of plastic is being tested in Sweden which has the same strength and properties as the others, but which has the advantage of being able to decompose quickly after use¹⁶⁴” (tFF). Around the same time, the *Journal de Genève* informed us that “[r]esearch is actively pushed towards new plastics considered degradable and “clean” in their destruction. Some of these products are already being tested in the United States and it is hoped that polluting plastics will disappear in the packaging industry¹⁶⁵” (tFF). About 20 years later, in 1989, readers of that same newspaper were assured that “an Italian chemical manufacturer has just developed a new biodegradable plastic¹⁶⁶” (tFF). And in 1996, they learn that “[t]hanks to genetically modified plants a new path-way for plant-based plastic seems promising¹⁶⁷” (tFF). Of course, they are also warned that “we are still a long way from industrial applications and that in any case, the product [...] will never be

*intended to completely supplant synthetic plastics obtained from petroleum*¹⁶⁸ (tFF). Indeed, it will not. According to *European Bioplastics* – the association representing the interests of the European bioplastics industry – “[c]urrently, bioplastics represent about one percent of the more than 368 million tonnes of plastic produced annually¹⁶⁹”. This concerns both bio-based/ non-biodegradable, and biodegradable substances¹⁷⁰. Notwithstanding this failing track record and negligible result, new promising bioplastic inventions continue to pop up periodically¹⁷¹.

Linked to this, there is an ongoing confusion about what it means to be *bioplastic*, *biodegradable plastic*, *compostable plastic*, ...¹⁷². When for instance *European Bioplastics* talks about biodegradable plastic, this can be fossil based¹⁷³. Besides, on a close look, many of the alternatives to *traditional* plastic are problematic in themselves and comparatively do not offer the environmental improvement we hope for¹⁷⁴. Due to this vagueness of definitions and concepts about these *good-conscience-plastics*¹⁷⁵, it is difficult to see the wood for the trees and not to get lost in the imbrolio of nice-sounding terms.

In Switzerland, public authorities are aware of the matter, and try to provide clarity through information on their website¹⁷⁶ and in documents for the wider public¹⁷⁷. But things should go further. To avoid replacing one problematic material for another, clarity is needed, not just for the interested end-consumer, but also for decision-makers themselves, as well as for producers and professional users of different materials.

In response to a parliamentary question by Adèle Thorens Goumaz on how to clarify and better control the designation “biodegradable”, the Federal Council assures that she “*will examine as soon as possible, on the basis of the regulations announced by the EU [...], the advisability of imposing restrictions on certain products containing oxodegradable plastics. In this context, she will also determine whether these concepts need to be legally defined*¹⁷⁸” (tFF). In the same line, a motion by Isabelle Chevalley, accepted by both the National Council and the Council of States, tasks the Federal Council to implement a ban on oxo-degradable plastic¹⁷⁹. **This is promising, but so far covers only one type of biodegradable alternative. Further steps should be taken to clarify and regulate the bio-plastic entanglement overall.**

The uncertainty about bioplastics is a clear example of why we need a comprehensive definition of what to understand by *plastic*. In this regard, just as for oxo-degradable plastics, the on-going legislative process about biodegradable and compostable plastics in the EU (see 3.1.2 above) deserves to be followed closely. To counter a piecemeal approach where new synthetic materials are looked at as they arrive – meaning that as a society and the public authorities representing it, we constantly run behind new *innovations* – we have to engage in a discussion about synthetic materials overall. This should result in a comprehensive definition on what we understand by *plastic* (see 5.2.1 above).

5.3.6 Liquid polymers

Currently discussions on plastic do little or not consider liquid polymers, and only recently has public awareness of this started to increase. As a result, little is generally known about these plastics and their possible effects on health and environment (see 1.4.3.2-3 above).

Of course, PCCP producers assure us that liquid polymers are no cause for concern (see 1.4.3.2 above). But given the questionable track record of the chemicals and consumer industry regarding their *everything-is-safe*, we are justifiably allowed to be suspicious about such insurances. After all, PFAS used in an array of daily products were assured to be safe for decades, yet all-along the producing industry knew they were not¹⁸⁰. Similarly, freon, heavily praised in a 1957 DuPont commercial as “*a safe and an efficient refrigerant*¹⁸¹” got largely banned thirty years later by the Montreal Protocol (1987) when it became clear that CFCs were having a disastrous effect on the ozone layer. As to BPA, the industry did not lose time and effort to deny and delegitimise proof about its adverse health effects¹⁸². For glyphosate, evidence indicates that by 1981, Monsanto and the U.S. EPA knew of its link with cancer¹⁸³. **And, the PCCP industry was warned long ago about the adverse effect of microbeads (see 1.4.3.1 above), so why should we believe them now on liquid polymers?**

“ **To avoid losing valuable time through producers’ deny-derail-delay tactics, a strong precautionary principle should prevail and the prove of evidence should for once and for all be reversed.** ”

Considering all this, there is an urgent need for more knowledge about these plastics. Yet, in order **to avoid losing valuable time through producers’ deny-derail-delay tactics, a strong precautionary principle should prevail and the prove of evidence should for once and for all be reversed.** As it cannot do this alone, Switzerland should actively collaborate with others to take a clear stance on this. And, while things have to be cleared out, this should not hinder already a profound reflection on a more comprehensive definition of plastic in the law. From a precautionary perspective, liquid polymers should already be taken into consideration in this regard.

Obviously, those who see their interests challenged by the uncertainty this creates for investments and innovation will oppose this. But we should really start to wonder if such uncertainty for producers – maybe pushing them to innovate a bit more slowly and carefully – is worse than the current uncertainty for consumers that the product they use will turn out to be harmful for the environment and/ or their health; as has happened so many times already.

5.4 DISCUSSION & CONCLUSION

“ **The plastic problem is not a waste crisis, it is a production and consumption crisis.** ”

The overall vision with governments, the industry, and society in general still seems to be that *“the plastic problem is one of management, not one of eradication¹⁸⁴”* and certainly the industry continues to assure us that the issue is not plastic, but waste¹⁸⁵. But **the plastic problem is not a waste crisis, it is a production and consumption crisis.** As repeatedly shown throughout this report, many problems related to plastic are not just about how to manage waste, but about how to avoid waste. By focussing on waste and how to develop ever more complex strategies and technologies to make it disappear, we hide and forget the processes through which all this waste is created in the first place¹⁸⁶. Processes which in themselves create many other problems as well.

Obviously, as soon as one starts to question plastic consumption, numerous claims follow about how *“[p]lastics packaging offers a range of benefits to society, helping in its advancement and **improving its standard of living**¹⁸⁷”,* how *“[m]any single-use products made of or including plastics are necessity products that have brought significant **contributions to quality of life** and the protection of goods¹⁸⁸”*; about how plastics are *“bringing many economic and environmental **benefits** [...] [and] **enhance** comfort, safety and hygiene^{189,h}”*; about how *“[plastic is] light, it’s cheap, it’s everywhere and **we can’t live without it**¹⁹⁰”*.

And yet, none of this justifies today’s overconsumption (of plastic). **When talking about solving the plastic problem, it is not about prohibiting plastic as such, but about limiting its use.** It’s not about taking away bicycle helmets, hearing aids, asthma sprays or contact lenses, as a video from *Plastindustrien*, the Danish plastic federation, insinuates¹⁹¹. Indeed, as they say, *let us talk realistically about plastic* and only use it *where it makes sense*.

In a similar vein, **the issue is not about replacing plastic by other materials**, but about limiting our consumption as such. To solve the plastic problem, the aim is (should be) to decrease overproduction and-consumption in general, including that of plastic. When *“the most environmentally friendly waste never arises in the first place¹⁹²”*, then the best way to make that happen is not to produce the product that will become waste in the first place.

In line with such recognitions, measures urgently have to be taken to practically decrease our material consumption.

^h The Pact itself from which these citations are coming seems not to be available anymore on their website. They were asked about this by e-mail in August 2021 yet never came back to us. Therefore, just as for certain references to Plastics Europe’ documents, the hyperlink in references refers to a pdf version we kept from the document.

As to plastics, this chapter therefore started by distinguishing three domains where Switzerland can act straight away, even without any further change to the society in place.

First of all, **we should stop using disposable items (boxes, plates, cups, cutlery, ...) for any form of take-away.** This concerns all items (be it made from plastic or any other material) only used once, or at best a few times before being thrown away. We have to put in place genuine systems of reuse where both suppliers and consumers of take-away food and drinks participate in reusing the same items as often as reasonably possible (see 5.1.1).

The same goes for disposable bags. The issue is not about replacing one material for another, such as plastic by paper, but about avoiding their use all together wherever possible. And, when a bag is needed, to use properly reusable ones, again as long as reasonably possible (see 5.1.2).

As to microbeads in personal care and cosmetics products, they are an aberration we have to get rid of as rapidly as possible. Despite early concerns about their environmental impact and purely driven by financial gain, and notwithstanding viable alternatives, they were nonetheless added to an increasing variety of products. And notwithstanding many promises, companies are still dragging their feet on their removal (see 5.1.3).

In Switzerland each of these bans – disposable take-away items, bags, and microbeads – can be carried out on the basis of existing legislation. In each of these cases, invoking the law is not an issue of feasibility, legality, or science, but of political will and courage; a question of what kind of society we want.

Of course, just prohibiting the most emblematic expressions of our throwaway consumer culture will not be enough. These measures only make full sense when they act as stepping stones for further, more comprehensive changes.

To guide these changes, it is important to have a sound vision of what we are up against and what we want to realise. Multiple materials and products were, or still are not considered in the debate because we fail to see how they actually are plastic. Therefore, **it is important to develop a comprehensive definition of what we understand by plastic** (see 5.2.1). Furthermore, there is a lot of talk about the circular economy as a solution to the many externalities of the way economic production is organised today, including with regard to plastic. However, the circularity concept is largely defined as it fits the user, and often remains embedded in an inherently contradictory growthist logic. Public authorities can help reduce confusion by giving direction on the matter. **In Switzerland, circularity should be integrated more visibly in the Environmental Protection Act, and the Waste Ordinance has to be reformulated to create clarity about the proper waste hierarchy** (see 5.2.2.)

In accordance with such clearer definitions, further measures can be taken. For now, we distinguished six further domains of action:

Reuse should be stimulated and again become the default approach for packaging material (see 5.3.1).

Tyre wear has to be brought down by changing transportation habits (see 5.3.2), just as **microfibre shedding should be curbed** by a decreasing consumption of new fast-fashion clothing mainly produced from synthetic fibres (see 5.3.3).

Furthermore, we have to **halt cigarette butts**. To do so, cigarette producers have to take responsibility for the litter from their products. But also, as an overall win-win, Switzerland should bring down the number of smokers in the country, and reflect about how much it wants to profit from something as destructive as the tobacco industry (see 5.3.4).

Finally, through a clearer and more comprehensive understanding of plastic we can better streamline on-going claims on- and discussions about **bioplastics as an alternative (or not) to conventional plastic** (see 5.3.5) and from the start frame the **upcoming, and much-needed debate about liquid polymers** (see 5.3.6).

5.5 REFLECTIONS & RECOMMENDATIONS

- Everything is connected. Tyre abrasion is not just about plastic, but about how we organise transport and look at road traffic; cigarette butts are not just about plastic, but about public health; take-away food packaging or synthetic fibres are not just about plastic, but about a consumerist ideology of always more ... → **We have to work across traditional topic boundaries to realise systemic change.**
- Our prosperity is built on an exuberant environmental footprint, and goes at the expense of the wellbeing of others. Our lifestyle is not sustainable as such. → **We should stop being seduced by claims about how plastic is crucial to our prosperity, and without it our quality of life would not be possible.**
- Over and over again industries have assured the public that everything is ok, that we do not have to worry about their products possibly harming our health or the environment. And yet, too often do we had to find out that they were systematically lying and denying. This has to stop. → **Embedded in a strong precautionary approach, the burden of proof about if and why a product or substances is not harmful, should for once and for all be put with the producer.**
- The plastic problem is multifaceted, but the key problem is clear: too much. To tackle the problem structurally, both production and consumption have to be brought down. → **Switzerland can already under existing legislation take relevant measures, and should urgently do so.**

ENDNOTES

- 1 RTS (31.03.2021), [La vaisselle en fibres de bambou bientôt interdite en Suisse](#); Interpellation by Sophie Michaud Gigon, 11.03.2020 ([20.3085](#)).
- 2 See: Tonner Buzz (06.03.2021), [Facts About Paper: How Paper Affects the Environment](#).
- 3 Freinkel, Susan (2011), [Plastic. A toxic love story – Houghton Mifflin Harcourt](#), p. 121.
- 4 Motion by Delphine Klopfenstein Broggini, 16.06.20 ([20.3637](#)).
- 5 Greenpeace Suisse (July 2021), [Le réutilisable dans les villes suisses. Etude comparative](#), p. 3.
- 6 République et Canton de Genève – Département du territoire (30.06.21), [Nouvelle politique de gestion des déchets. Point presse du Conseil d'Etat](#), slide 10. <https://www.recircle.ch/en/>
- 7 Zero Waste Switzerland, [Zero Waste friendly shops](#).
- 8 Packaging Portal (03.05.2017), [Europe's Out-Of-Home packaging market – €6bn by 2020](#).
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CONCLUSION AND FINAL RECOMMENDATIONS

Switzerland has a plastic problem no less than any other country in the world. Yet Swiss authorities continue to be evasive and reticent on the matter. The country still looks away from the issue and prefers not to see how, while maybe not in a similar eye-catching way as in other places, a plastic crisis manifests itself in many insidious forms.

It is time for Switzerland to stop being a laggard. The country has to fully recognise its plastic problem and take decisive action accordingly. This report has sought to push for such action.

Based on an overview of the most pressing issues – ranging from the country’s unjustifiably high plastic consumption and the problems with waste incineration, to littering and microplastic from daily used products – it looked at how Swiss legislation so far deals with the matter, and assessed what federal policymakers are doing about it. Subsequently, the report put this into comparison with what is happening elsewhere, especially within the EU and in the context of the UN’s ongoing plastic treaty negotiations. Finally, it reflected on the origins of today’s plastic crisis and how it connects with many other socio-environmental troubles that we are facing; showing how already long-ago warnings were given about the mess we were getting ourselves in to, but we did not listen.

In response to our findings about problems and their current answers, the report then proposed concrete measures to be taken in Switzerland.

In this regard, we first and foremost called upon the Federal Council to **apply existing law to drastically limit plastic overconsumption** wherever possible. Art. 30a letter a of the Environmental Protection Act authorizes the Swiss government to prohibit products intended for once-only, short-term use when the benefits of such use do not justify the harm to the environment they cause. We argued why this does apply to both **disposable take-away items** and **single-use bags**, and urged federal authorities to ban these products from the Swiss territory without delay. In a similar vein, the report discussed why **microbeads** have to be proscribed from being used in personal care and cosmetic products.

To guide further action, we subsequently recommended Switzerland to **introduce clear definitions into the law** on what actually is meant by **‘plastic’** and **‘circular economy’**.

Finally, the report presented a set of further actions that we believe necessary if we really want to turn the tide on the plastic pandemic. Which we should.

As a start, Switzerland should **reinstall reuse systems for glass beverage bottles and other packaging**, something that the country used to have before. It should also take relevant measures to **structurally take down tyre wear, cigarette butts’ litter and microfibre shedding from clothes**. Such measures should not only focus on technical fits, but on changing consumption patterns. Furthermore, work has to be done to **better regulate bioplastics and liquid polymers**.

Switzerland has a plastic problem and is currently a laggard as to how it deals with it. It should have the courage to change this. By taking the measures put forward by this report it can do so, and can turn itself into a leader in the necessary change towards **a world with much less plastic**.

In summary,

this report recommends that:

- Switzerland fully recognises how the plastic crisis is not just something from elsewhere, but manifests itself in the country in many ways.
- Switzerland turns from a laggard into a leader in creating a world with much less plastic.

To do so, it urges Swiss federal authorities to apply the law and

- take measures to stop the use of disposable take-away items, including boxes, plates, cups and cutlery,
- take measures to prohibit the use of single-use bags,
- take measures to ban the use of microbeads in personal care and cosmetic products sold in the country.

It furthermore encourages them to introduce comprehensive definitions into the law about

- what precisely is understood when talking about plastic,
- what is meant by a circular economy.

Furthermore, it calls upon federal authorities to

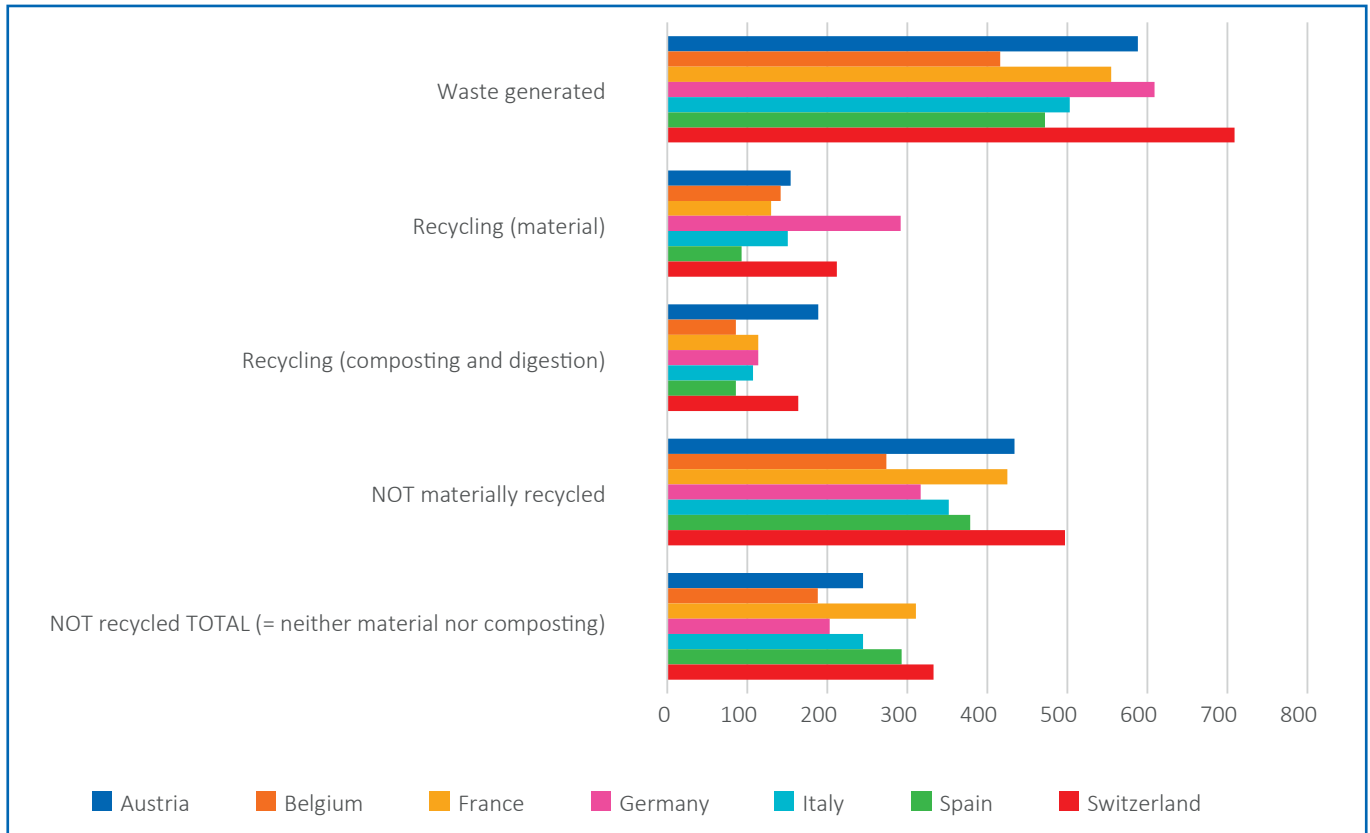
- take action to stimulate the reintroduction of meaningful reuse systems for glass bottles and other packaging materials,
- limit the release of tyre wear in the country,
- stop littering from cigarette butts,
- bring down the emission of synthetic microfibres from clothes,
- better regulate bioplastics, and
- incorporate liquid polymers into the debate on plastic.

Additionally, the report makes the case that

- the multiple socio-environmental crisis we are facing today are interconnected and have common roots in a growthist ideology of overconsumption. Therefore, to tackle these problems, just technical fits will not suffice. We have to change our way of living.

ANNEX

Annex 1 – Recycling in Switzerland and some neighbouring countries (in kg p.c.) (source: Eurostat)



Annex 2 – Parliamentary interventions on plastics (2000-2022)

Intervention	Type	Topic(s)	Title	MP	Party	Chamber
01.3614	P	Pollution	Verwertung von Kunststoffabfällen	UREK- NR		NR
05.3042*	I	Recycling	Trittbrettfahrer gefährden das freiwillige Recycling	Ursula Haller Vannini	BDP	NR
06.3138*	M	Littering	Einführung einer Strafbestimmung für das Wegwerfen von Müll	Hans Ulrich Mathys	SVP	NR
07.3632*	P	Waste/ incineration	Abfälle. Alternativen zur Verbrennung	Anne-Catherine Menétrey-Savary	Grüne	NR
08.3185*	I	Waste/ incineration	Koordination der Kehrrechtverbrennung	Luc Recordon	Grüne	SR
08.3303	M	BPA	Verbot von Babyflaschen mit Bisphenol A	Zisyadis Josef	AL	NR
08.3438	M	Plastic bags	Verbot von Wegwerf-Plastiksäcken	De Buman Dominique	CVP	NR
09.3316	P	Pollution	Das Sammeln und das Recycling von Abfällen fördern	De Buman Dominique	CVP	NR
09.4061*	I	Waste/ incineration	Wer trägt die Lasten der Abfallwirtschaft?	Walter Donzé	EVP	NR
10.3338	M	BPA	Ersatz von Bisphenol A	Moser Tiana Angelina	GLP	NR
10.3850	M	SUP	Stopp der Verschmutzung durch Wegwerf-Plastiksäcke	De Buman Dominique	CVP	NR
10.3866	P	Recycling/ Polystyrene	Recycling von Styropor aus Haushalten	Franziska Teuscher	Grüne	NR
10.3923	I	BPA	Ist Bisphenol A wirklich so ungefährlich, wie uns das BAG glauben machen will?	Bugnon André	SVP	NR
10.5069	Q	BPA	Risiken von Bisphenol A	Moser Tiana Angelina	GLP	NR

10.5483	Q	BPA	Verbot von BPA nun auch in der EU	Moser Tiana Angelina	GLP	NR
10.5582	Q	Pollution/ microplastic	Verschmutzung der Meere durch Plastikabfall	Ingold Maja	EVP	NR
11.3219	I	bio-plastic/ bags	Auch in der Schweiz nur biologisch abbaubare Tragsäcke?	Cassis Ignazio	FDP	NR
11.3944*	M	<i>Pollution/ littering</i>	<i>Bekämpfung des Litterings</i>	<i>Andrea Martina Geissbühler</i>	SVP	NR
11.4045	P	BPA	Bisphenol-A-Problematik	Schenker Silvia	SP	NR
11.4199	I	bio-plastic/ packaging	Problematische Bioplastik-Verpackungen aus Nutzpflanzen	Graf maya	Grüne	NR
11.5245	Q	BPA	Bisphenol A in Babyflaschen	Chiara Simoneschi- Cortesi	CVP	NR
12.3765*	I	<i>Waste</i>	<i>Abfallentsorgung. Keine Bevormundung der Konsumentinnen und Konsumenten</i>	<i>Josiane Aubert</i>	SP	NR
13.3056*	M	<i>Waste/ littering</i>	<i>Schaffung einer Rechtsgrundlage für Litteringabgaben</i>	<i>Pascale Bruderer Wyss</i>	SP	SR
13.3620	I	Oxo-plastic	Oxo-biologisch abbaubare Säckchen. Eine schlechte Idee	De Buman Dominique	CVP	NR
13.413*	P. I.	<i>Waste/ littering</i>	<i>Verstärkung der Massnahmen gegen das Liegenlassen von Abfällen (Littering)</i>	<i>Bourgeois Jacques</i>	FDP	NR
13.4257	I	Recycling/ packaging	Kunststoffrecycling in der Schweiz	Trede Aline	Grüne	NR
14.1061	Q	Recycling	Warum kein vorgezogener Recyclingbeitrag auf allen Kunststoffabfällen?	Chevalley Isabelle	GLP	NR
14.3255	M	Microplastic/ cosmetics	Mikroplastik in Körperpflegeprodukten verbieten	Glättli Balthasar	Grüne	NR
14.5120	Q	Packaging	Mit Plastik umhüllte Zeitschriften	Von Siebenthal Erich	SVP	NR
14.5176	Q	Microplastic	Mikroplastik. Umfang des Problems, bestehende Forschungsprogramme und mögliches Verbot	Glättli Balthasar	Grüne	NR
16.1039	Q	Pollution/ microplastic	Mikroplastik in Gewässern. Massnahmen nach der ETH-Studie?	Glättli Balthasar	Grüne	NR
16.3586	M	Microplastic/ cosmetics	Kein Mikroplastik zum Schutz unserer Gewässer, der Meere und unserer Gesundheit	Glättli Balthasar	Grüne	NR
16.4042*	I	<i>Pollution/ incineration</i>	<i>Rolle der Kehrichtverbrennungsanlagen als Emittenten von CO2 aus der Verbrennung fossiler und nichterneuerbarer organischer Abfälle</i>	<i>Erich von Siebenthal</i>	SVP	NR
17.3257	P	Recycling/ packaging	PET-Recycling in der Schweiz. Weshalb ein gut funktionierendes System ändern?	Cramer Robert	Grüne	SR
17.5085	Q	Pollution/ microplastic	Plastikmikrofasern in Gewässern. Massnahmen	Friedl Claudia	SP	NR
18.3132	I	Pollution/ microplastic	Gesundheitliche Folgen von Mikroplastik	Gysi Barbara	SP	NR
18.3196	P	SUP	Wie kann künftig ein ökologischer, effizienter und wirtschaftlich rentabler Umgang mit Kunststoffen garantiert werden?	Thorens Goumaz Adèle	Grüne	SR
18.3327	M	Microplastic/ cosmetics	Kein Mikroplastik zum Schutz unserer Gewässer, der Meere und unserer Gesundheit. Aller guten Dinge sind drei	Glättli Balthasar	Grüne	NR
18.3496	P	Pollution	Aktionsplan zur Reduzierung von Plastikeinträgen in die Umwelt	Munz Martina	SP	NR
18.3626*	M	<i>Waste/ packaging</i>	<i>Übermässige Verpackungen sind ein Irrwitz</i>	<i>Benjamin Roduit</i>	EVP	NR
18.3712	M	SUP/ pollution	Weniger Plastikmüll in Gewässern und Böden	UREK- NR		NR
18.3721	I	Oxo-plastic	Täuschung rund um die oxo-abbaubaren Säckchen stoppen	Chevalley Isabelle	GLP	NR
18.4110	I	Packaging	Mehr Transparenz bei den Mengen an Plastikverpackungen im Detailhandel	Chevalley Isabelle	GLP	NR
18.4273	I	SUP	Was sollen diese unsinnigen Plastikkleber auf jeder einzelnen Frucht?	Hösli Werner	SVP	SR
18.4317	I	Packaging	Kunststoff. Welche Massnahmen braucht es, um übermässige Verpackungen zu reduzieren?	Ruiz Rebecca Ana	SP	NR

18.5249	Q	SUP	Die EU verbietet Plastik. Zieht der Bundesrat nach?	Schneider Schüttel Ursula	SP	NR
18.5270	Q	SUP	Schluss mit Plastikmüll!	Rytz Regula	Grüne	NR
18.5362	Q	SUP	Neuenburg verbietet Trinkhalme aus Plastik. Reine Symbolpolitik?	Sollberger Sandra	SVP	NR
19.2008	Pt	Pollution	Stoppen Sie die Plastikverschmutzung!	fair fish		
19.3126	I	Waste	Abfallsammlung und-verwertung. Wie steht es um Plastik?	Chevalley Isabelle	GLP	NR
19.3161	I	Recycling/ packaging	Verzicht auf die Verwendung von Plastikfolien beim Versand von Zeitschriften und Druckerzeugnissen	Christoph Eymann	FDP	NR
19.3484	I	SUP/ pollution	Weniger Plastikverpackungen	Kälin Irène	Grüne	NR
19.3559	P	Microplastic/ tyres	Reifenabrieb als grösste Quelle von Mikroplastik. Massnahmen zur Verminderung	Schneider Schüttel Ursula	SP	NR
19.3560	I	SUP	Branchenvereinbarungen zur Reduktion von Plastik	Schneider Schüttel Ursula	SP	NR
19.3727	M	Circul. econ.	Kreislaufwirtschaft fördern, Fehlregulierung beheben	Bourgeois Jacques	FDP	NR
19.3765	P	SUP	Weniger Einwegplastik im Alltag. Mögliche gesetzliche Änderungen	Romano Marco	CVP	NR
19.3770	I	Waste	Pyrolyse, die Zukunft der Entsorgung von Plastik und anderen Abfällen	Grin Jean-Pierre	SVP	NR
19.3775	I	Cigarettes	Ein Zigarettenstummel enthält 12 000 Mikroplastik-Partikel. Was macht der Bundesrat?	Chevalley Isabelle	GLP	NR
19.3810*	I	Circul. econ.	<i>Frankreich erlässt Vorschriften zur Kreislaufwirtschaft. Eine Inspiration für die Schweiz?</i>	<i>Thorens Goumaz Adèle</i>	Grüne	NR
19.3818	P	Waste/ incineration	Millionen Tonnen von Plastik einsparen, ersetzen oder recyceln statt verbrennen oder exportieren	Flach Beat	GLP	NR
19.4100*	M	Waste/ littering	<i>Wirksame Massnahmen gegen Littering</i>	<i>Bourgeois Jacques</i>	FDP	NR
19.4182	M	Oxo-plastic	Wann werden oxo-abbaubare Kunststoffe verboten?	Chevalley Isabelle	GLP	NR
19.4276	I	SUP/ pollution	Übermässige Verpackung und Bioprodukte. Gibt es den politischen Willen, die Umwelt zu schonen?	Mazzone Lisa	Grüne	NR
19.4355	P	SUP	Plastikmüll. Vermeiden und Wiederverwerten statt Exportieren	CVP-Fraktion	CVP	NR
19.4441	I	Waste/ incineration	Durch die Verbrennung von Haushaltabfällen wird keine erneuerbare Energie erzeugt, sondern Energie zurückgewonnen	Chevalley Isabelle	GLP	NR
19.4629	M	Cigarettes	Umweltverträgliche Zigarettenfilter	Gugger Niklaus-Samuel	EVP	NR
19.470	P. I.	SUP	Einführung eines Pflichtpfands auf Getränkedosen und Getränkeflaschen	Gmür Alois	CVP	NR
19.477*	P. I.	Circul. econ.	<i>Die Schweizer Kreislaufwirtschaft stärken. Mehr Wiederverwertung von Abfällen</i>	<i>Thorens Goumaz Adèle</i>	Grüne	NR
19.5143	Q	Oxo-plastic	Wann kommt ein Verbot von oxo-abbaubaren Kunststoffen?	Chevalley Isabelle	GLP	NR
19.5217	Q	Oxo-plastic	Label "biologisch abbaubar". Klare Festlegung des Standards und bessere Kontrolle	Thorens Goumaz Adèle	Grüne	NR
20.1077*	Q	Waste	<i>Wann schaffen wir die Kehrichtverbrennungsanlagen ab?</i>	<i>Greta Gysin</i>	Grüne	NR
20.3056	I	Pollution	Ballenschnüre und anderer Plastik in der Umwelt	Schneider Schüttel Ursula	SP	NR
20.3085	I	Health	Becher aus "Bambus", die gesundheitlich bedenkliche Stoffe in heisse Getränke abgeben	Michaud Gigon Sophie	Grüne	NR
20.3123	I	SUP	Reduktion von Einwegartikeln aus Plastik. Durch wen und bis wann?	Schneider Schüttel Ursula	SP	NR
20.3124	I	SUP	Erweiterte Herstellerverantwortung im Bereich Einwegplastik	Schneider Schüttel Ursula	SP	NR
20.3637	M	SUP	Abfallfreie Takeaway-Gastronomie	Klopfenstein Broggini Delphine	Grüne	NR
20.3695	M	Recycling/ circul. econ./ packaging	Förderung der Kreislaufwirtschaft. Die Schweiz soll mehr Plastik rezyklieren	Dobler Marcel	FDP	NR

<u>20.3785*</u>	I	Waste	<i>Kehrichtverbrennungsanlagen bekommen die kostendeckende Einspeisevergütung für Energie, die nicht aus Biomasse stammt. Wann wird diesem Schwindel ein Ende gesetzt?</i>	Chevalley Isabelle	GLP	NR
<u>20.3801*</u>	M	Waste	<i>Moratorium für den Bau neuer Kehrichtverbrennungsanlagen</i>	François Pointet	GLP	NR
<u>20.3940</u>	M	Recycling/ circul. econ./ packaging	Mehr rezyklierten Kunststoff in Kunststoffverpackungen für Getränke und Reinigungsmittel	UREK- NR		NR
<u>20.4088*</u>	P	Pollution/ tyres	<i>Durch Reifen- und Bremsabrieb freigesetzter Feinstaub. Lösungen zur Bekämpfung der gesundheitsschädigenden Auswirkungen finden</i>	Clivaz Christophe	Grüne	NR
<u>20.4184</u>	I	Pollution	Globalem Abkommen zur Vermeidung von Plastikverschmutzung beitreten	Gugger Niklaus-Samuel	EVP	NR
<u>20.4185</u>	P	SUP/ covid-19	Auf die Verwendung wiederverwendbarer Masken hinwirken	Clivaz Christophe	Grüne	NR
<u>20.4233</u>	M	Waste/ industrial waste	Plastiklittering durch Betreiber von Wasserkraftwerken stoppen	Suter Gabriela	SP	NR
<u>20.433*</u>	P. I.	Circul. econ.	<i>Schweizer Kreislaufwirtschaft stärken</i>	UREK - NR		NR
<u>20.4349*</u>	M	Waste	<i>Ressourcenverschleiss bei Verpackungen verkleinern. Verkauf von tiefgekühlten Lebensmitteln ohne Vorverpackung erlauben</i>	Andri Silberschmidt	FDP	NR
<u>20.4411*</u>	P	Recycling/ circul. econ.	<i>Weiterentwicklung des Abfall-Recyclings. Vereinbarkeit mit dem Raumplanungs- und Umweltrecht</i>	Johanna Gapany	FDP	SR
<u>20.4459</u>	M	Pollution/ covid-19	Zertifizierte Stoffmasken gegen mehr Abfall im öffentlichen Raum	Klopfenstein Broggini Delphine	Grüne	NR
<u>20.447</u>	P. I.	SUP/ bags	Verbot der Gratisabgabe von Einweg-Plastiksäcken	Klopfenstein Broggini Delphine	Grüne	NR
<u>20.5683</u>	Q	SUP/ covid-19	Covid-19. Gedenkt der Bundesrat, das Tragen von wiederverwendbaren Masken und das Recycling von Einwegmasken zu fördern?	Clivaz Christophe	Grüne	NR
<u>21.3077</u>	M	Pollution/ littering	Eine nationale Sensibilisierungs- und Präventionskampagne in Zusammenarbeit mit den Kantonen gegen die derzeitige Plage, das Littering	Grin Jean-Pierre	SVP	NR
<u>21.3217</u>	M	Recycling	Vorgezogener Recyclingbeitrag oder vorgezogene Entsorgungsgebühr auf allen Kunststoffen	Greta Gysin	Grüne	NR
<u>21.3486</u>	I	Recycling	Ökologische Getränkeverpackungen. Recycling fördern	Anna Giacometti	FDP	NR
<u>22.3211*</u>	I	Cigarettes/ littering	<i>Es herrscht Handlungsbedarf. Puff Bars sind gefährliche und teilweise illegale E-Zigaretten!</i>	Laurence Fehlmann Rielle	SP	NR
<u>22.3427</u>	I	Microplastic/ health	Mikroplastik im Blut. Gefahr für die Gesundheit?	Sarah Wyss	SP	NR
<u>22.3444</u>	M	Microplastic/ pollution	Aktionsplan "Verminderung und Vermeidung von Mikroplastik in Gewässern"	Munz Martina	SP	NR
<u>22.7535</u>	Q	Packaging	Plastik bei der Verpackung sparen	Gugger Niklaus-Samuel	EVP	NR
<u>22.3820</u>	M	Microplastic	Konkrete Massnahmen gegen Mikroplastik aus Textilfasern treffen mit Branchenvereinbarungen	Glättli Balthasar	Grüne	NR

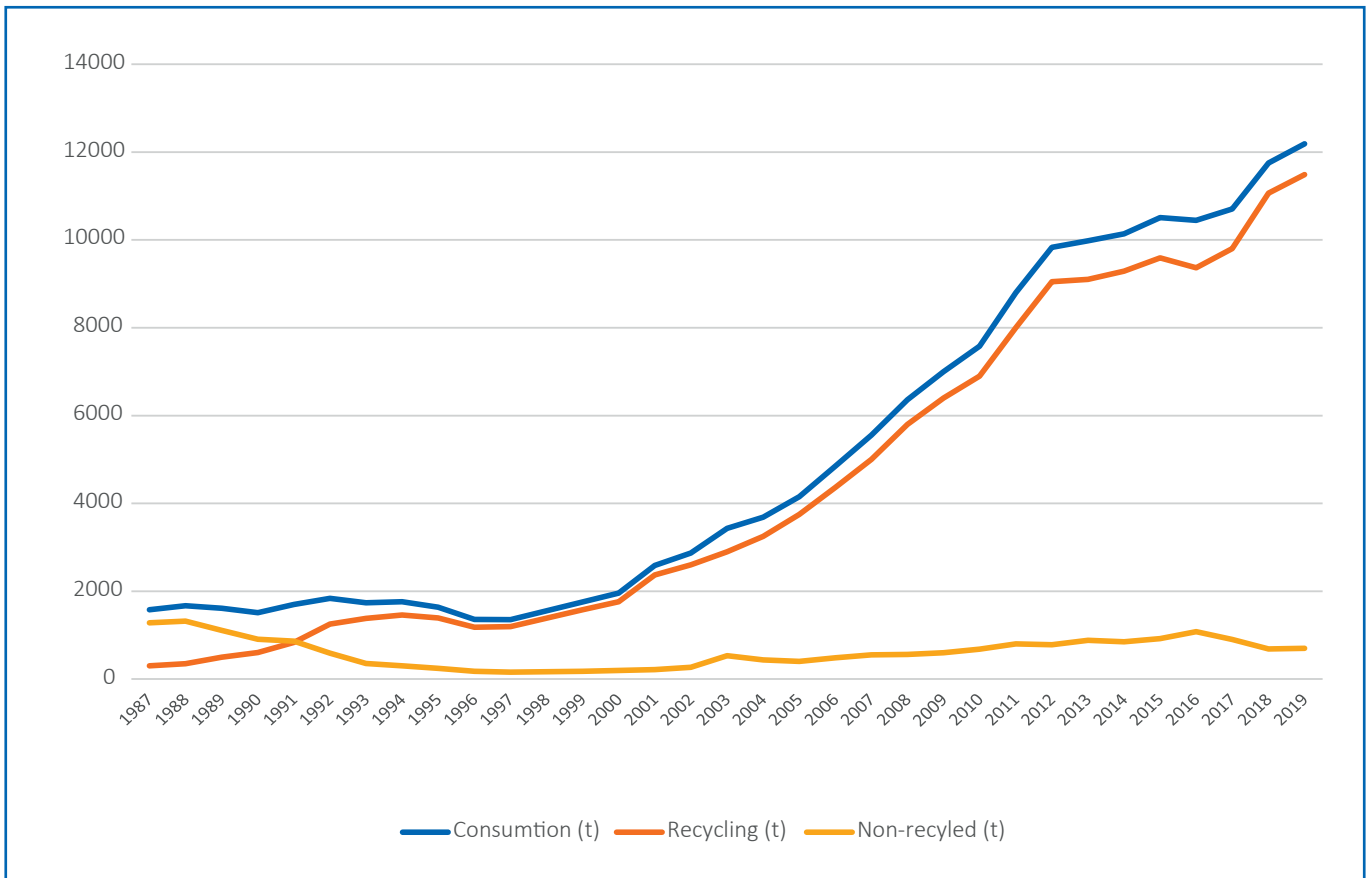
This table gives an overview of the members of the Swiss Parliament that had an intervention in the Parliament related to plastics.

Interventions were searched for through Curia Vista, the database of the Swiss parliament. A general search was carried out in French by using the word "plast[...]". This presented 10 different search terms (« plastique », « plastique à usage unique », « plastique pour développer l'économie circulaire », ...). Additional searches were carried out in German, on "Verpackung", "Abfall", "Reifen", and "Kosmetika". The results for each of these terms were systematically looked at, and the relevant ones were kept.

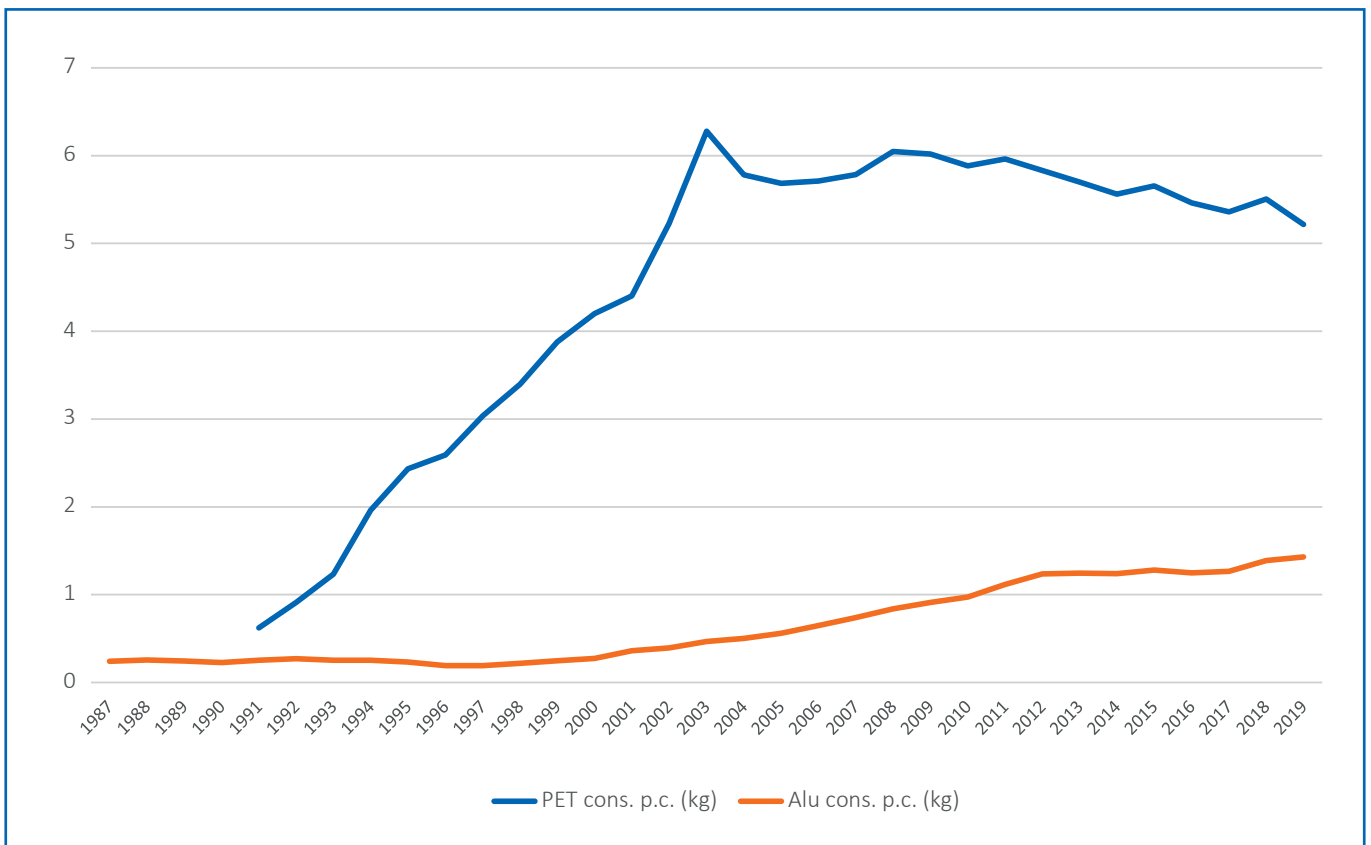
Interventions marked with a *, do not mention plastic as such, or do only mention it superficially, but are listed because of their relevance with regard to waste and packaging in general.

M = Motion; Q = Question; I = Interpellation; P = Postulate; P. I. = Parliamentary Initiative; Pt = Petition.
NR = Nationalrat; SR = Ständerat.

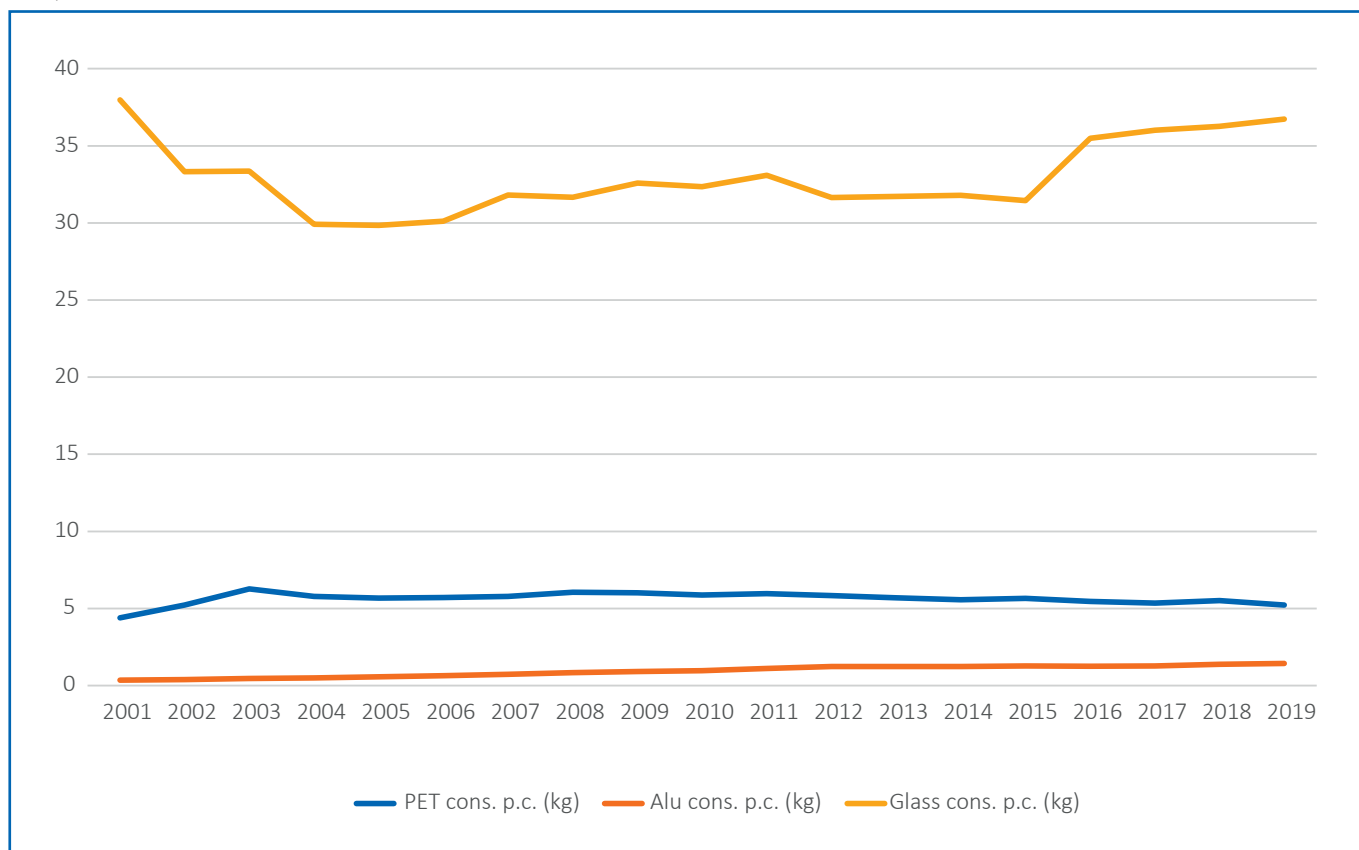
Annex 3 – Consumption of aluminium beverage cans in Switzerland (Source: based on Igora.ch, Verwertungsquote Aluminium Getränkedosen)



Annex 4 – Consumption of PET beverage bottles vs aluminium beverage containers in Switzerland (source: based on BAFU, Separat gesammelte Siedlungsabfälle für die Verwertung 2006; BAFU (18.12.20), Verwertung von Getränkeverpackungen 2019)



Annex 5 – Consumption of beverage containers in Switzerland (Source: based on BAFU (18.12.20), Verwertung von Getränkeverpackungen 2019; own calculation based on these data.



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