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### Clean in Times of Covid-19: on Hygiene and Pollution

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May 3, 2020 (<http://somatosphere.net/2020/clean-in-times-of-covid-19.html/>)

# Clean in Times of Covid-19: on Hygiene and Pollution (<http://somatosphere.net/2020/clean-in-times-of-covid-19.html/>)

Science,  
Medicine, and  
Anthropology

A collaborative website  
covering the intersections of  
medical anthropology,  
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studies, cultural psychiatry,  
psychology and bioethics.

By Mandy de Wilde (<http://somatosphere.net/author/mandy-de-wilde/>), Weera Koopman (<http://somatosphere.net/author/weera-koopman/>) and Annemarie Mol (<http://somatosphere.net/author/annemarie-mol/>)

This article is part of the series: Dispatches from the pandemic  
(<http://somatosphere.net/series/dispatches-from-the-pandemic/>)

As the coronavirus pandemic spreads, air pollution and greenhouse emissions decrease, or so [news reports](https://www.theguardian.com/environment/2020/mar/23/coronavirus-pandemic-leading-to-huge-drop-in-air-pollution) (<https://www.theguardian.com/environment/2020/mar/23/coronavirus-pandemic-leading-to-huge-drop-in-air-pollution>) say. The [satellite images](https://www.cnbc.com/2020/03/02/nasa-images-chinas-air-pollution-decreased-amid-coronavirus-measures.html) (<https://www.cnbc.com/2020/03/02/nasa-images-chinas-air-pollution-decreased-amid-coronavirus-measures.html>) of China in lockdown provided a first striking example. In response to this, one Dutch [newspaper](https://www.trouw.nl/duurzaamheid-natuur/er-is-ook-een-winnaar-in-de-coronacrisis-het-milieu~b8516992/) (<https://www.trouw.nl/duurzaamheid-natuur/er-is-ook-een-winnaar-in-de-coronacrisis-het-milieu~b8516992/>) even proclaimed ‘a winner’ in the coronavirus pandemic, namely ‘the environment’. But that is a bit too hasty. Not only are (as [environmental](https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2333) (<https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2333>)experts warn) industries, mining activities and air traffic bound to pick up again as soon as they can. There are also tragic side-effects that come with the way *clean* is operationalized in everyday attempts at preventing the nasty virus to spread. For while clean in the sense of *virus-free* is now a widely shared pressing concern, another kind of clean, that of *not-polluting*, is less readily attended to. In this contribution to *Somatosphere’s* Covid-19 series we stake no claims, if only because sadly we have no one-size-fits-all solution on offer. But amidst all the other tragedies that are unfolding, we care to point out this particular one. *One clean is not the other*. And, as it is, the vigor invested in caring for *hygiene* unduly generates all kinds of *pollution*.



One clean is not the other

### **Toxic disinfections**

In various ways, hand washing is propagated as a way to block the trajectory of the virus from unclean objects to human faces. For as virus-smear hands touch a face, mouth, nose and eyes offer entrances into the human body. In Vietnam (<https://www.euronews.com/2020/03/06/coronavirus-vietnamese-covid-19-video-goes-viral-as-prevention-message-proves-popular>) a collaboration between the authorities and a popular rapper led to the instructions being cast in a compelling song-and-dance. In Uganda (<https://www.aljazeera.com/news/2020/03/uganda-bobi-wine-releases-song-fight-coronavirus-pandemic-200326065117792.html>) the song came from another corner and the tune was different – but the core message was the same. In different tones, then, different publics are taught that soapy water will wash all stuff, virus included, from dirty hands. Soap also cleans in another way: it destroys the outer lining of the virus, which protects the RNA and hence its genetic information. Only when it remains protected, is RNA able to replicate itself once it has entered a suitable host cell. In the absence of water and soap, hand sanitizer can also do the trick. In Amsterdam, where we happen to reside, some of the shops that are allowed to stay open offer hand sanitizer to their customers. And meanwhile, brewers (<https://www.iamexpat.nl/expat-info/dutch-expat-news/bavaria-produce-hand-sanitiser-hospitals-and-gps>) have shifted from brewing beer to bottling alcohol so that it may serve as a disinfectant.



Hand sanitizer in the supermarket

All the washing, however, is not particularly friendly to the skin of human hands. Some people are concerned that a coarse and cracking skin might provide the coronavirus with yet another entrance, but it doesn't. Coronavirus likes to live in airways, not in the tissues that make up hands. However, all the washing does interfere with the bacterial flora that protects the skin against other microbes and, added to that, itchiness and pain form their own problems. These are among the so-called *side-effects* of striving after cleanliness.

And there are more of these, due to the ways in which human bodies respond to the products used for cleaning houses. As the virus potentially travels between the bodies of the different members of a household, public health experts propose other relevant countermeasures. Here is one, quoted in the local Amsterdam newspaper (<https://www.parool.nl/nederland/corona-in-huis-hoe-schoon-is-virusvrij~b0899213/>): "Surfaces that are often touched have to be cleaned regularly. Think of door handles, light switches, banisters, remote controls, flush button of the toilet, faucets, so called hand-contact points." Following the tradition that *hygiene* is also associated with the cleaning of floors, kitchen worktops, and toilets, many people will work on all these surfaces. But how to go about it? The Dutch National Institute for Public Health and the Environment propagates the simple use of water, soap and an all-purpose cleaner, and specifically advises against the use of bleach. By contrast, UNICEF (<https://www.unicef.org/coronavirus/cleaning-and-hygiene-tips-help-keep-coronavirus-covid-19-out-your-home#cleaning-home>) mentions possibly using bleach while the US Centers for Disease Control and Prevention (<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/disinfecting-your-home.html>) state that for some kitchen surfaces a diluted bleach solution might be commendable. (The US president thereupon frighteningly suggested that if disinfectant can be used to clean stuff, it is worthwhile to find out if, drunk or injected, it might clean the body on the inside, too.) In Spain (<https://www.spanjevandaag.com/16/04/2020/problemen-na-mixen-schoonmaakmiddelen-toegenomen-in-spanje/>) the National Institute of Toxicology and Forensic Science reported that, since the lockdown, they have noticed a significant increase in reports of people with adverse effects due to their house cleaning efforts. The same thing is happening in the United States (<https://nypost.com/2020/04/20/americans-go-overboard-on-cleaning-products-during-pandemic/>). It appears that in their eagerness to

achieve hygienic cleanliness, some people combine bleach with all-purpose cleaner, or, worse, ammonia. If the chlorine gas which results from this mix is inhaled, it can cause serious respiratory problems and burns in the throat.

But if human bodies may be poisoned due to cleaning efforts, this also goes for the bodies of other creatures, living downstream, in the waters and soils where discarded household water flows. If bleach reaches local rivers and lakes it reacts with other minerals to form a host of toxins. These toxins are labelled as ‘persistent organic pollutants’ or ‘forever chemicals’ because they endure in natural environments and take many years to dissolve. In the Netherlands, pollutants in the water tend to get diluted by the 100 liters or more of waste water each person uses every single day. Hence, the effects do not appear all that immediate and waste water treatment plants claim that they purify water up to 95 per cent (<https://www.voordewereldvanmorgen.nl/duurzame-blogs/overschoonmaakmiddelen-in-het-riool>) before it reaches rivers and canals. But what about the remaining 5 per cent? And what about sites and situations where waste water treatment is not particularly well tamed? We are left with the concern that the vigor invested in *cleaning away* the coronavirus comes with a lot of toxic, pollution-type *uncleanliness*.

### **Packaging: maybe dirty, maybe protective, surely waste**

If it is the travelling of the virus from one human body to the other that should be prevented, then this raises the question of how the virus might travel. A microbiologist in the local Amsterdam newspaper (<https://www.parool.nl/nederland/corona-in-huis-hoe-schoon-is-virusvrij~b089213/>) gives a tentative answer: “American research into the survival time of the coronavirus on different surfaces shows that plastic and steel are materials on which the virus can survive for a long while, up to three days. It is not clear if the virus is then still infectious. On cardboard and copper the virus does not last as long. Also think of your phone, that often harbors pathogens.” Copper is not all that relevant to most people’s daily lives. However, cardboard is, and its importance has increased with the increase of home deliveries to people who are not allowed, not able, or not willing to shop – but who still go on buying food supplies, books and other materials. Goods arrive on the doorstep in cardboard boxes. First, this gives rise to concerns about the hygienic cleanliness of those boxes: where do they come from, who has coughed on them, is there virus on the cardboard? Maybe it should not be touched for some time. A virologist quoted in another a Dutch newspaper (<https://www.ad.nl/koken-en-eten/hoe-koop-je-veilig-bij-de-supermarkt-of-een-afhaalrestaurant-een-viroloog-geeft-tips~a16cfcc1/>) advised a 72 hour pause before handling packages. But then after unpacking, what to do with all the cardboard? In our neighborhood we are meant to put our garbage in underground containers. Specific ones are designated for paper and cardboard. But in the last few weeks they are no longer large enough to hold the cardboard dutiful citizens seek to dispose in them. There is too much of it. This gives a small indication of all this other added cardboard that life in times of Covid-19 is generating – made, used, littered, or disposed of along with other waste.

A full  
cardboard  
container  
with  
cardboard  
litter next  
to it

Hence, packages may be dirty in different ways: they may carry virus and thus be unclean in hygienic terms *and* they are potential pollutants when thrown away. Maybe they are recycled. But maybe not. To complicate things even further, packaging is also used to keep goods clean and prevent the virus from

travelling. Here, plastic tends to take over from cardboard. The research firm BloombergNEF warns that concerns “around food hygiene due to COVID-19 could increase plastic packaging intensity, undoing some of the early progress made by companies.” And McKinsey (<https://www.mckinsey.com/industries/paper-forest-products-and-packaging/our-insights/how-the-packaging-industry-can-navigate-the-coronavirus-pandemic>) is equally concerned: “Because of the pandemic, there is a new appreciation by consumers and industries of the hygiene advantages plastic packaging can offer that seems to be outweighing concerns about recyclability and plastic-waste leakage into the environment.” In our neighborhood, the eco-food store sells small bread rolls and pastries. There used to be an inviting assortment of them on the counter and as a customer you could point at a few of these. These would then be picked up with a pair of tongs and dropped into a paper or a cloth bag; you could take your own. Now, however, this practice has been suspended. Who knows who might cough over the supplies if they were left out in the open? Plastic bags are used to solve the problem.

Bakery  
products  
packed in  
plastic in  
the organic  
supermarket

In an *eco-blog* (<https://www.hetkanwel.nl/2020/04/15/plastic-minderen/>), an activist confesses to being suddenly inclined to buy tomatoes packaged in plastic, as if suddenly the benefits outweigh the harm. She then adds advice about how to fight this inclination and combine hygiene and eco-friendliness, for instance by washing food products thoroughly with baking soda or vinegar. But however sound that advice may be, it doesn't necessarily land all that easily. On a collective level, or so we read – left, right and center – there is a *growing demand* (<https://www.foodnavigator.com/Article/2020/04/01/Plastic-packaging-Hero-or-villain-in-the-coronavirus-era>) for plastic packaging.

Hence, while the corona virus survives on single-use plastics longer than on most of the goods they may hold, people do not eat the plastic, they eat what is inside. This, or so they hope, has stayed virus-free thanks to the plastic. Once again, amidst the added concern for *hygienic-clean* other kinds of *clean* – this time clean-from-polluting-plastics – suffer. There are comparable problems with places selling *coffee-to-go* (<https://www.theguardian.com/environment/green-living-blog/2010/nov/18/environmental-cost-of-coffee-to-go>) in disposable cups or take-out-food in containers. In the name of hygiene, there is a shift back to a *throwaway culture* (<https://www.politico.com/news/2020/04/14/coronavirus-risks-a-return-of-the-throwaway-culture-187464>). The stuff-thrown-away may spread out as litter on land or in oceans, it may slowly degrade in landfills or be burned quickly in incinerators. But in one way or another: it pollutes soils, water or air. And, via one *edible detour* (<https://www.earthcapades.com/surfrider-foundation-what-goes-in-the-ocean-goes-in-you/>) or another, sooner or later, it is bound to return to the content of cups, to dishes on plates, and from there to the bowels, blood and cells of ‘consumers’.

### **Disposable protection**

In many countries there is not enough protective material – gloves, face masks, eye goggles – to protect health care professionals of all kinds against being infected by the Covid-19 patients whom they care for. As in many cases that might have been otherwise, this is not a tragedy (in which two bad situations are in tension) but a scandal (a problem due to negligence). While proper protective devices are truly helpful for carers and others who are in

persistent close contact with those who carry the virus, this is not obvious in daily life, on which we are concentrating here. The issue is contested (<https://www.bmj.com/content/369/bmj.m1442.long>). Are gloves a good thing for those who shop, so that their hands do not pass on the virus to whatever they might touch – or should they have washed their hands before entering the shop and repeat this afterwards? The eco-food store in our neighborhood has a box of black gloves on the counter.

“For  
your  
and  
our  
health  
we  
offer  
you  
gloves”

But where do such gloves go after they have been used? That black glove on the side walk, there (<https://www.nrc.nl/nieuws/2020/03/29/latex-handschoenen-tegen-het-coronavirus-a3995720>), is that one of those the store offered? It is made of a nasty synthetic rubber. It might as well form a biohazard risk (<https://abcnews.go.com/Health/single-plastic-gloves-good-idea-coronavirus-problem/story?id=70018864>) for urban cleaning professionals if they were to pick it up from the streets. But before they have a chance to do so, the wind may have carried it away, or the rain may have swept it to a nearby canal or a sewage drain.

With face masks something similar is going on. In the Netherlands we are warned against using face masks as they may create a false sense of safety or even increase the risk of infection if used in a non-expert way. Many masks on the market are too flimsy to fulfill their promise. Health care workers deserve first access to the high-quality ones. In other countries (<https://www.newshub.co.nz/home/world/2020/04/coronavirus-countries-where-face-masks-are-mandatory-in-covid-19-fight.html>) face masks are obligatory – in supermarkets or in public transport or out on the streets. And just like gloves, face masks, too, are often littered.

All this ‘coronalitter’ (<https://plasticsoupsurfer.org/campaigns/coronalitter-study/>) is on the rise. Globally (<https://gulfnnews.com/world/coronavirus-are-discarded-masks-and-gloves-the-new-cigarette-butts-twitter-users-ask-1.1586262967503>), discarded gloves and masks are spread around as a new variant on cigarette butts. The numbers are disconcerting. Take the case of Hong Kong (<https://www.reuters.com/article/us-health-coronavirus-hongkong-enviromne/discarded-coronavirus-masks-clutter-hong-kongs-beaches-trails-idUSKBN20Z0PP?fbclid=IwAR0iMlCG0RKEhYuU6WVn3RIPMdAakyP2T-7iW-BivABSIlqRyueZbSi1-V2w>) alone. For weeks, its 7.4 million inhabitants have been putting on single-use face masks every day. Most of these were made from polypropylene, a type of plastic. Huge numbers were not disposed of properly, but have been dumped in the countryside or in the sea. Marine life can mistake them for food, they wash up on beaches along with plastic bags and other trash, or might eventually be broken down into even more hazardous micro-pollutants. Environmental groups are already seeing the effect: “People think they’re protecting themselves, but it’s not just about protecting yourselves, you need to protect everybody and by not throwing away the mask properly, it’s very selfish.”

Discarded  
face mask  
in an

However, even if *properly* discarded, most gloves and face masks are made for single use and after that need to be *discarded*. There is discussion about how to best to do so. In some places (<https://www.reuters.com/article/us-health-coronavirus-hongkong-environme/discarded-coronavirus-masks-clutter-hong-kongs-beaches-trails-idUSKBN20Z0PP?fbclid=IwAR0iMlCG0RKEhYuU6WVn3RIPMdAakyP2T-7iW-BivABSIqRyueZbSi1-V2w>) there are concerns about the ongoing viral contamination they may pose – hence the advice to put them in separate trash bags. Or even to first wash (<https://www.egypttoday.com/Article/6/84559/COVID-19-How-to-dispose-of-used-face-mask-gloves>) them with water and soap for 20 seconds, then cut them into small parts to prevent re-use, to finally dispose of them inside a plastic bag. The idea is that this might protect trash collectors who directly deal with waste on a daily basis. Hygiene is hard to come by in their line of work. But where do the trash collectors take the trash – and what happens with all this plastic – of varied kinds? Sometimes it may be burned, but often it is added to ever expanding landfills. In one way or another, disposables become part of the massive piles of unrecyclable waste (<https://www.theguardian.com/environment/2019/aug/17/plastic-recycling-myth-what-really-happens-your-rubbish>). They are polluting.

There are now experiments on how masks might be cleaned so that they can be used three times rather than just one. And there are experiments with cloth masks that could be made at home or in a local tailor shop. All over the net, health platforms (<https://www.healthline.com/health-news/the-best-material-for-a-homemade-face-mask#Making-your-own-mask-at-home>) and newspapers (<https://www.theguardian.com/us-news/2020/apr/06/how-to-make-no-sew-face-mask-coronavirus>) give advice about how to revamp pillow cases, flannel pajamas or bandanas, by cutting and sewing them into shape and adding in paper filters. The working of these contraptions is one thing. It deserves to be experimented with. But the design challenge (<https://www.nrc.nl/nieuws/2020/04/19/virusvrij-met-snorkelmasker-a3997205>) is that of making effective protective gear that is not for one-off use, but can be cleaned, again and again. The ability to keep people protected from the virus by long-lasting, and preferably biodegradable, materials, would be a welcome step in keeping environments clean from pollution.

#### **To end with**

The English word *clean* alludes to many kinds of cleanliness. Here we have attended to two of these. First, the *clean* that is meant to prevent microbes from invading human bodies, either by stopping them in their tracks, or by quickly washing them from dirtied skin. This also goes under the name of *hygiene*. Second, there is the *clean* of avoiding the contamination of humans, other creatures, soils and water by toxins. The antonym of this kind of *clean* is *pollution*. These two *cleans* do not easily go together. Here, we have highlighted a few of the ways in which they are in tension.

The virus that causes Covid-19 is remarkably nasty. As it kills substantive numbers of people, making many others truly ill, it has raised the stakes of *hygiene*. And while we may hope that at some point this particular pandemic is over, virologists warn that more are likely to follow. Nobody knows when, where, or how. What is certain, however, is that *pollution* will endure and, if not seriously countered, aggravate. It is already eroding many lifeforms and along with that also threatens human health. Which raises the question of how we can care *at the same time* for different kinds of cleanliness.



*members of the Department of Anthropology of the University of Amsterdam. They work there as respectively post-doc, research assistant and full professor on the project Clean as a Good and over the last weeks they have directed their research efforts to the study of Hygiene and Pollution.*

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*The photographs used in this piece were all taken by the authors.*

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