

# Bulletin Board

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MAY. 15, 2020

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**\* While Chemwatch has taken all efforts to ensure the accuracy of information in this publication, it is not intended to be comprehensive or to render advice. Websites rendered are subject to change.**

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## Regulatory Update

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### ASIA PACIFIC

#### AICIA (new scheme) 1 July 2020

2020-04-08

The Australian Industrial Chemicals Introduction Scheme (AICIS) will replace NICNAS on 1 July 2020 as the new national regulator of the importation and manufacture of industrial chemicals in Australia.

The ban on the use of new animal test data for ingredients solely used in cosmetics will also begin on 1 July 2020.

Check out our new videos on the AICIS Inventory, confidential business information and AICIS evaluations

NICNAS, 8 April 2020

<https://www.nicnas.gov.au/New-scheme-1-July-2020>

22 October 2019

#### China consults on official English translation of RoHS2 conformity assessment guidelines

2020-04-23

China's Electronics Standardization Institute (Cesi) is consulting until 18 May on an official English language translation of the guidelines to accompany the conformity assessment rules under RoHS2.

Cesi is a nonprofit institution that sits directly under the Ministry of Industry and Information Technology (MIIT), which is the ministry responsible for China RoHS2. The institute is authorised by the government to develop national and industry standards.

The guidelines contain information on:

- the risk assessment of hazardous substances in electrical and electronic products;
- how to prepare the supporting documents required for conformity assessment;
- product conformity evaluation;
- how to prepare a declaration of conformity for the use of hazardous substances; and
- how to maintain evaluation results.

**The ban on the use of new animal test data for ingredients solely used in cosmetics will also begin on 1 July 2020.**

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The guidelines known as the voluntary national standard GB/T 37876-2019 (conformity evaluation guidelines for hazardous substances in electrical and electronic products) aim, together with the conformity rules, to support the implementation of China RoHS2.

They were approved last year and implemented from 1 March this year. Companies have been required to prove compliance with regard to the products listed under China RoHS2 since 1 November 2019.

### Official translations

This official English language translation follows a 2016 decision by the Standardization Administration of China (SAC), the body responsible for the management, supervision and overall coordination of standardisation work in China, to provide foreign language translations.

To date, a small number of translations have been published, but it is not known which foreign languages other than English will be included in future.

“The government has highlighted it will focus on mandatory national standards and standards that have an impact on market entry for products [such as this one],” said Weiwei Luo, attorney at US-based law firm, Beveridge & Diamond.

“We can expect to see more foreign language translations in the future since there is such a high demand from foreign industry,” she added.

The decisions on which standards will be translated are made by individual industry standards committees. The SAC acts as the coordinating body and is responsible for publishing the standards.

“It is likely that SAC will have a prioritised list of translations that are being or will be worked on. But I do not exclude the possibility they will put the list to industry and the public for comments,” said Ms Luo.

Chemical Watch, 23 April 2020

<https://chemicalwatch.com/109920/china-consults-on-official-english-translation-of-rohs2-conformity-assessment-guidelines#overlay-strip>

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### AMERICA

#### **Substances added to Schedule I and Schedule IV of the U.S. Controlled Substances Act**

*2020-04-21*

The following substance has been added to Schedule I of the U.S. Controlled Substances Act:

1. Fentanyl-related substances

In addition, the following substance has been added to Schedule IV:

1. Lemborexant

Yordas Hive, 21 April 2020

<https://www.yordasgroup.com/hive/news/article/890>

#### **EPA delays TSCA science advisory meeting for asbestos**

*2020-04-21*

The US EPA has postponed the Science Advisory Committee on Chemicals (Sacc) peer review meeting on the draft risk evaluation for asbestos.

The virtual meeting was scheduled for 27-30 April, but the EPA has delayed the meeting "due to recent changes in the availability of [Sacc] members". The agency did not say when the meeting would be rescheduled.

Sacc advisory panels provide independent recommendations to the EPA on the scientific basis for the agency's risk assessments.

Back in March the Asbestos Disease Awareness Organization asked the EPA to postpone the meeting and said it is "delighted the EPA finally listened to the scientific and public health communities and rescheduled the virtual Sacc meeting due to the coronavirus pandemic", the group said.

The agency did not cite the Covid-19 pandemic in its statement announcing the delay. When reached for comment, an EPA spokesperson said the agency's statement "speaks for itself".

The EPA published its draft risk evaluation for asbestos in late March, focusing on "ongoing" uses of the heat-resistant silicate. In it, the agency provisionally identified a number of unreasonable risks to workers, occupational non-users, consumers and bystanders, including from the use of asbestos diaphragms in the chlor-alkali industry.

**Sacc advisory panels provide independent recommendations to the EPA on the scientific basis for the agency's risk assessments.**

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A preparatory virtual meeting was held on 7 April. This was designed to help the advisory panel consider the scope and clarity of the draft evaluation in preparation for the peer review.

At that meeting, the American Chemistry Council (ACC) recommended revisions to questions related to the chlor-alkali industry. It asked if the approach for attributing values for sample results that are below the limit of detection were consistent with EPA Superfund guidance for asbestos risk assessment.

Comments on the draft risk evaluation are due by 2 June. The EPA said it did not anticipate a delay to this deadline. But it did say that all written comments received on time would be given to the Sacc for a rescheduled peer review meeting.

The EPA said it would issue another announcement once a new date for the Sacc is finalised.

Chemical Watch, 21 April 2020

<https://chemicalwatch.com/109220/epa-delays-tsca-science-advisory-meeting-for-asbestos#overlay-strip>

## EUROPE

### Potential endocrine disrupting properties of toys for babies and infants

2020-04-03

Plastic toys mouthed by children may be a source of exposure to endocrine active substances. The purpose of this study was to measure hormonal activity of substances leaching from toys and to identify potential endocrine disruptors causing that activity. For this purpose, migration experiments of toys were conducted in saliva simulants. The CALUX<sup>®</sup> assays were used to detect (anti-) estrogenic and (anti-) androgenic activity of 18 toys. Chemical trace analysis—namely, GC-MS and HPLC-MS—was used to identify which compounds may be responsible for endocrine activity in the sample migrates. Nine out of 18 tested toys showed significant estrogenic activity. For two samples, the detected estrogenic activity could be well explained by detecting the known endocrine active substance bisphenol A (BPA). For all identified substances, including BPA, a risk assessment for human health was performed by comparing the exposure dose, calculated based on the

**The purpose of this study was to measure hormonal activity of substances leaching from toys and to identify potential endocrine disruptors causing that activity.**

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determined substance concentration, to toxicological reference values. Using worst-case scenarios, the exposure to BPA by mouthing of the two estrogen active, BPA-containing toys could be above the temporary TDI that EFSA has calculated. This demonstrates that some toys could significantly contribute to the total exposure to BPA of babies and infants. For seven out of nine estrogen active samples, the source of the estrogen activity could not be explained by analysis for 41 known or suspected endocrine active substances in plastic, indicating that the estrogen activities were caused by currently unknown endocrine active substances, or by endocrine active substances that would currently not be suspected in toys.

PLoS ONE, 3 April 2020

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0231171>

### Parliament decides to postpone new requirements for medical devices

2020-04-17

- New approval rules for medical devices to be postponed by one year
- Health authorities and manufacturers can now focus entirely on fighting COVID-19

#### **To prevent shortages or delays in getting key medical devices on the market, Parliament decided to postpone the application of the Medical Devices Regulation.**

Parliament adopted the Commission proposal on Friday, by urgent procedure with 693 votes to 1 and 2 abstentions, allowing the application of the Medical Devices Regulation to be postponed by one year until 26 May 2021.

Given the current pressure on national health authorities and manufacturers of medical devices, there is a fear that there could be shortages or delays in getting the medical devices needed to fight COVID-19, were they to follow the new rules of the Medical Devices Regulation from May this year.

The European Parliament is therefore supporting the proposal to postpone the application of this Regulation by one year to allow authorities and manufacturers alike to prioritise the fight against the coronavirus pandemic by continuing under current procedures.

**To prevent shortages or delays in getting key medical devices on the market, Parliament decided to postpone the application of the Medical Devices Regulation.**

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### Next steps

The proposal now also has to be approved by the member states and published in the Official Journal before it will enter into force. This is expected at the latest by 26 May.

### Background

European legislation ensures that medical devices are safe to use and facilitates patients' access to devices on the European market.

In 2017, two new regulations on medical devices and in vitro diagnostic medical devices were adopted to improve patient safety and increase transparency on medical devices across the EU. The new regulation for medical devices was supposed to be fully applicable on 26 May 2020. The date of application of the In Vitro Diagnostics Medical Devices Regulation is not affected by the new proposal and becomes applicable from 26 May 2022, as planned.

European Parliament, 17 April 2020

<https://www.europarl.europa.eu/news/en/press-room/20200415IPR77113/parliament-decides-to-postpone-new-requirements-for-medical-devices>

### Commission removes derogations from draft EU tattoo ink restriction regulation

2020-04-20

#### Adoption expected in second half of year

The European Commission has removed certain derogations from its draft Regulation amending Annex XVII to REACH to restrict hazardous chemicals in tattoo inks or permanent make-up.

The restriction would impose concentration limits for substances, including:

- carcinogenic, mutagenic or reprotoxic substances (CMRs);
- skin sensitisers or irritants;
- substances that are corrosive or damaging to the eyes; and
- metals and other substances regulated in cosmetic products.

However it granted derogations for certain pigments.

**However it granted derogations for certain pigments.**

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In response to NGO feedback in the public consultation on the proposals late last year, the Commission has now removed derogations for pigments green 7 and blue 15:3.

These, the European Environmental Bureau says, were “not properly justified and not supported by Rac [Echa’s Risk Assessment Committee]”. Instead of a derogation, the draft, which was published this month, allows a two-year transitional period for their use.

It also takes on board another recommendation from EEB:

- support Rac’s proposal for a “dynamic link” between the cosmetics product regulation and their classification, labelling and packaging (CLP) to ensure consistency of protection levels.

### Next steps

On 7 April the Commission notified the WTO of its draft regulation. The WTO notification provides interested parties with a 7 June deadline to provide comments.

The EU executive is expected to adopt the amended Regulation in the second half of the year. Once adopted it will enter into force 20 days following publication in the EU’s *Official Journal*.

The restriction will begin to apply one year after the date of entry into force

Chemical Watch, 20 April 2020

<https://chemicalwatch.com/106546/commission-removes-derogations-from-draft-eu-tattoo-ink-restriction-regulation#overlay-strip>

## INTERNATIONAL

### IOFI updates Global Reference List

2020-04-17

On 17 April 2020, the International Organization of the Flavor Industry (IOFI) updated the Global Reference List (GRL). The following substances were added:

1. 1-(3,5,5,6,8,8-Hexamethyl-5,6,7,8-tetrahydronaphthalen-2-yl)ethanone
2. S-Allyl-L-cysteine sulfoxide
3. trans-5-Dodecenal

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4. cis-6-Dodecenal
5. cis-9-Dodecenal
6. Mixture of 5-hydroxy-4-(4'-hydroxy-3'-methoxyphenyl)-7-methylchroman-2-one and 7-hydroxy-4-(4'-hydroxy-3'-methoxyphenyl)-5-methylchroman-2-one
7. 2-Ethoxy-4-(hydroxymethyl)phenol
8. 2-Mercapto-3-methyl-1-butanol
9. Hexyl propyl disulfide
10. 3-Methyl-2(5H)-furanone
11. trans-Tetradec-4-enal
12. 2,6-Dimethylheptenyl formate
13. L-Carnitine tartrate
14. 3,7-Dimethyl-2-methyleneoct-6-en-1-ol
15. Tridec-5-enal
16. 4,7-Decadienal
17. 3-Methylbutane-1,3-dithiol
18. S-Methyl 5-(1-ethoxyethoxy)tetradecanethioate
19. S-Methyl 5-(1-ethoxyethoxy)decanethioate

The following substance was removed:

N-Ethyl-5-methyl-2-(methylethenyl)cyclohexane carboxamide

Yordas Hive, 17 April 2020

<https://www.yordasgroup.com/hive/news/article/891>

### Supreme Court maintains Amazonas ban on cosmetic testing on animals following industry challenge

2020-04-25

The Brazilian Supreme Court decided today that the State of Amazonas was within its rights to promulgate Law 289/2015 banning cosmetic tests on animals in its territory. The law, passed in 2015 by the State Assembly of Amazonas to end these cruel and unnecessary tests, was challenged by the Brazilian Association of Cosmetics, Personal Hygiene and Perfume Industry (ABIHPEC). ABIHPEC submitted a Direct Action of Unconstitutionality (ADI 5996) to the Supreme Court in September 2018, arguing that the State of Amazonas had overstepped its powers and that the subject matter could only be ruled at the federal Level.

**In a unanimous vote, the 11 judges decided against ABIHPEC's request and confirmed that Amazonas has a legal right to ban cosmetics testing.**

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Humane Society International submitted an opinion to the Court, defending the constitutionality of Amazonas' ban by underlining that the state prohibition on the use of animals for cosmetic testing was both legally valid and scientifically sound. In a unanimous vote, the 11 judges decided against ABIHPEC's request and confirmed that Amazonas has a legal right to ban cosmetics testing.

Helder Constantino, HSI/Brazil's #BeCrueltyFree campaign manager, congratulated the Supreme Court for its decision: "It is wonderful that some progress has been achieved for the animals in these difficult times. Cosmetic tests on animals are unethical and strongly rejected by consumers. Over the years, a total of eight states have stepped in and enacted progressive legislation banning these tests, starting with São Paulo in 2014. This case was a very important one: if the law of the Amazonas had been declared unconstitutional, similar legislation could have been abrogated in all over Brazil. We congratulate the Court for its balanced judgement and for reaching its decision via a virtual process in order to comply with the confinement measures that we all must follow to slow down the COVID-19 epidemic."

ABIHPEC is also challenging Law 7.814/2017, which prohibits animal testing on cosmetics and the sale of cosmetics that have been tested on animals in the State of Rio de Janeiro. Judge Gilmar Mendes is presiding over the case (ADI 5995) and has yet to issue a decision.

HSI's #BeCrueltyFree campaign is supporting federal legislation ending cosmetic tests on animals. A report proposed to the Senate's Commission of Economic Affairs (CAE) by Senator Alessandro Vieira, amending Bill 70/2014, would ban animal-tested cosmetics and ingredients and ban testing cosmetics on animals with immediate effect.

### Facts:

Launched in 2012 by Humane Society International, #BeCrueltyFree is the largest campaign in history to end cosmetics animal testing and trade globally.

In Brazil, #BeCrueltyFree has received the support of Xuxa Meneghel, Fernanda Tavares, Ellen Jabour, Ray Neon, Rita Von Hunty, and many other influencers and celebrities. #BeCrueltyFree has also been joined by other NGOs, such as Latin American consumer awareness group Te Protejo.

The states of Amazonas, Mato Grosso do Sul, Minas Gerais, Pará, Paraná, Pernambuco, Rio de Janeiro and São Paulo have already banned cosmetic

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tests on animals. Together, these states host approximately 70% of Brazil's national cosmetic industry.

Thirty-nine countries have already enacted measures aligned with the objectives of the campaign, including the European Union, Norway, India, New Zealand, South Korea, Taiwan, Guatemala and Australia. Similar legislation is under consideration in Brazil, Canada, Chile, Colombia, South Africa, Sri Lanka, the United States and elsewhere.

Tests on animals are still allowed by National Agency for Sanitary Surveillance (Anvisa) regulations to assess the toxicity of cosmetics. Although some tests have been recently abolished by the National Council for the Control of Animal Experiments, a body of the Ministry of Science and Technology, long-term toxicity tests that can use hundreds of animals to evaluate a single substance are still allowed.

Human Society International, 15 April 2020

<https://www.hsi.org/news-media/brazil-supreme-court-upholds-amazonas-cosmetic-testing-ban/>

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## REACH Update

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### REACH Study Results have been updated

2020-04-17

REACH study results is a collection of non-confidential substance data that were submitted to ECHA under the REACH regulation. An updated version is available to download from this website.

The data contain results from studies that relate to physical-chemical properties, environmental fate and pathways, and ecotoxicology and toxicological information. Making this data downloadable is another step towards the goals of REACH - both in terms of improving the safe use of chemicals, for example through improved safety data sheets, and the development and use of alternative methods.

The data are derived from information also published on the [ECHA website](#). However, in REACH Study Results, only the results of studies are presented, and in a reduced form. On the ECHA website data may be viewed one substance at a time, but REACH Study Results allows data to be read in bulk by importing the data in to a local installation of IUCLID, and then using the [IUCLID 6 REST Public API](#), the [IUCLID Data Extractor](#) or, an [advanced IUCLID search tool](#). The results are made available to download in an archive that contains dossiers in IUCLID format (i6z) for approximately 23,000 substances. This way of delivering REACH Study Results allows users to import only the substances in which they are interested.

The use of the REACH Study Results is subject to dedicated terms and conditions that must be accepted before downloading the data. For example, the data may not be used for registration under the REACH Regulation.

[IUCLID6.echa.europa.eu](https://iuclid6.echa.europa.eu), 17 April 2020

[https://iuclid6.echa.europa.eu/view-article/-/journal\\_content/title/reach-study-results-have-been-updated?utm\\_source=echa-weekly&utm\\_medium=email&utm\\_campaign=weekly&utm\\_content=20200422&clde=Y2lhcmEudGhydXNoQGN0ZW1pY2Fsd2F0Y2guY29t&recipientid=lead-03dc9dd70a48ea118116005056b9310e-b330544c63f94841bf007ff424acb568&esid=be7302cd-7884-ea11-811e-005056b9310e](https://iuclid6.echa.europa.eu/view-article/-/journal_content/title/reach-study-results-have-been-updated?utm_source=echa-weekly&utm_medium=email&utm_campaign=weekly&utm_content=20200422&clde=Y2lhcmEudGhydXNoQGN0ZW1pY2Fsd2F0Y2guY29t&recipientid=lead-03dc9dd70a48ea118116005056b9310e-b330544c63f94841bf007ff424acb568&esid=be7302cd-7884-ea11-811e-005056b9310e)

**However, in REACH Study Results, only the results of studies are presented, and in a reduced form.**

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## REACH Update

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### Rac to discuss CLH in May

2020-04-23

Echa's Committee for Risk Assessment is holding an online meeting on 4 May to go through three proposals for harmonised classification and labelling (CLH).

These were set to be covered in the March meeting but it was cut short due to the impact of the coronavirus Covid-19 pandemic.

The remaining CLH proposals from the March meeting will be discussed at a meeting in the autumn.

The next full Rac meeting will be held virtually from 1-12 June. The agenda is available on Echa's website.

Chemical Watch, 23 April 2020

[https://echa.europa.eu/documents/10162/29022590/RAC-52B\\_Part1\\_ProvisionalDraftAgenda\\_4May20.pdf/23b1cc67-b150-e7da-b9ba-3f5cd940e2ab](https://echa.europa.eu/documents/10162/29022590/RAC-52B_Part1_ProvisionalDraftAgenda_4May20.pdf/23b1cc67-b150-e7da-b9ba-3f5cd940e2ab)

### Consultation update: proposed restriction of PFHxA

2020-04-23

Echa has clarified two questions related to the restriction proposal for undecafluorohexanoic acid PFHxA, its salts and related substances and also expanded the non-exhaustive list of substances in scope.

Further details can be found in the updated information note and indicative list of substances.

The agency ran an online information session on 23 April covering scope and how to contribute to the consultation.

Questions can be submitted until 29 April, and will be published as a Q&A document shortly afterwards.

Chemical Watch, 23 April 2020

<https://chemicalwatch.com/110256/echa-round-up#overlay-strip>

**Further details can be found in the updated information note and indicative list of substances.**

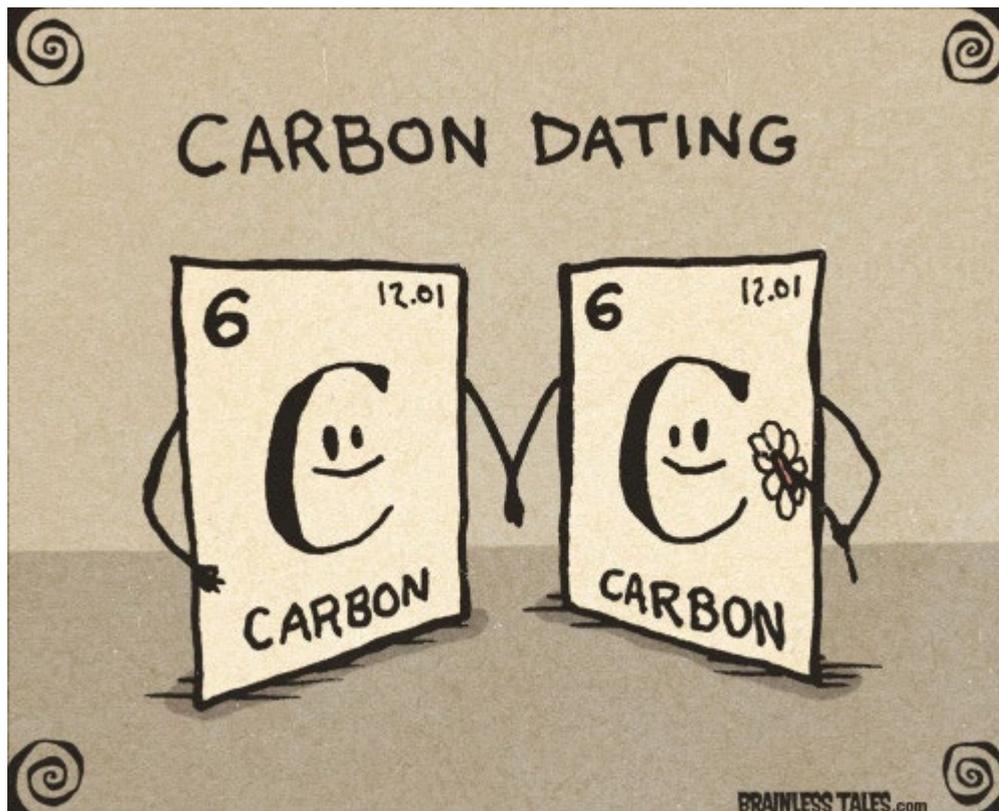
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## Janet's Corner

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### Carbon Dating

2020-05-15



<http://www.brainlesstales.com/2013-05-21/carbon-dating>

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## Hazard Alert

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### Carbon Monoxide

2020-05-15

Carbon monoxide is a highly toxic colourless, odourless and tasteless gas. The chemical formula for it is CO. The gas is produced by the burning of wood, gasoline, charcoal, propane and other fuel and is extremely flammable. It can build up in improperly ventilated spaces, such as engines. It is not considered carcinogenic. [1,2]

#### USES [3]

Carbon monoxide is produced at industrial levels in the manufacturing of inorganic and organic chemical compounds, such as the construction of steel. It is also present in the exhaust fumes of furnaces and internal combustion engines. Usually it is not the amount of carbon monoxide that is the cause for concern, but the area in which it is being produced. For example, the gas is found in tobacco smoke, which can cause a problem if it is smoked in a poorly ventilated indoor environment.

#### ROUTES OF EXPOSURE [1]

- Carbon monoxide is naturally found in the air at the very low concentration of 0.2ppm. This level is not dangerous to humans.
- Major capital cities have the potential to emit harmful levels of carbon monoxide.
- High levels of exposure usually occur in closed, or improperly ventilated, spaces.
- The human body uptakes carbon monoxide more readily than oxygen, so if there is too much carbon monoxide in the air, the body may replace its oxygen source with the poisonous chemical.
- Natural sources of carbon monoxide include volcanoes and bushfires.

#### HEALTH EFFECTS

Carbon monoxide poisoning affects a range of systems including the circulatory, nervous, respiratory and cardiovascular systems.

#### Acute Effects [1,2,3]

Severity of symptoms depend on the level and type of exposure.

**Carbon monoxide is a highly toxic colourless, odourless and tasteless gas.**

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## Hazard Alert

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- Carbon monoxide poisoning can be particularly dangerous for people who have been sleeping or drinking, as it can take them a long time to realise they have been exposed.
- If carbon monoxide is inhaled, it can cause nausea, vomiting, headaches, dizziness, loss of consciousness and weakness.
- In severe cases of exposure, it can lead to respiratory failure, coma, a weak pulse and death.

### Chronic Effects [2]

Glycerin is toxic to multiple body systems. Long-term effects of carbon monoxide poisoning could include: death or damage to fetuses, permanent brain damage and chronic cardiac problems—which could result in death. Carbon monoxide poisoning can happen very quickly, so “chronic” poisoning can be as short as 10 minutes, depending on the severity of it.

### SAFETY

#### First Aid Measures [4]

- Inhalation: INHALATION IS VERY TOXIC. If safe to do so, remove the victim from the source of carbon monoxide to a fresh air source. Immediately contact a medical professional.
- Skin contact: As carbon monoxide is a gas, a person will not be affected if it touches their skin. However, if the gas has been liquefied, remove the victim from the source of carbon monoxide. DO NOT apply heat to the area. If safe, remove any jewellery or clothes that may be constricting the area. Cover the affected area with a sterile dressing and call a doctor or poison centre.
- Ingestion: It is not possible to ingest gas.
- Eye contact: Carbon monoxide in gas form will not affect a person’s eyes. However, if poisoned in liquefied form, gently rinse the victim’s eyes with warm water. Cover eyes with sterile bandages and take the victim immediately to the hospital.

#### Exposure Controls/Personal Protection [4]

- Engineering controls: Safety showers and emergency eyewash fountains should be accessible in the immediate area of the potential exposure. ENSURE THERE IS ADEQUATE VENTILATION. Whenever possible, material should be handled in a laboratory.

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- Personal protection: Safety glasses, protective and dustproof clothing, gloves, an apron and an appropriate mask.

### REGULATION [5]

#### United States:

The Occupational Safety and Health Administration has set an 8-hour time weighted average (TWA) concentration for glycerin of 35ppm, and a ceiling of 200ppm. This level is a revised one, to ensure the safety of workers who have cardiovascular or pulmonary impairment; it will also protect healthy workers who worked in stressful conditions.

#### Australia [1]

Safe Work Australia: Safe Work Australia has set an 8-hour time TWA for glycerin of 30ppm. For a short term exposure period of 15-minutes, Safe Work Australia has set a limit of 200ppm, with a ceiling at 400ppm.

### REFERENCES

1. <https://www.environment.gov.au/protection/publications/factsheet-carbon-monoxide-co>
2. <https://www.mayoclinic.org/diseases-conditions/carbon-monoxide/symptoms-causes/syc-20370642>
3. <https://www.britannica.com/science/carbon-monoxide>
4. [https://www.ccohs.ca/oshanswers/chemicals/chem\\_profiles/carbon\\_monoxide.html](https://www.ccohs.ca/oshanswers/chemicals/chem_profiles/carbon_monoxide.html)
5. <https://www.cdc.gov/niosh/pel88/630-08.html>
6. <https://esv.vic.gov.au/wp-content/uploads/2017/03/GIAS-Information-Sheet-No.-44.pdf>

# Bulletin Board

## Gossip

MAY. 15, 2020

### Facemasks against COVID-19: Why Slovakia became the trailblazer

2020-04-28

Slovakia remains at the bottom of the EU list when it comes to the number of total cases and, more importantly, deaths per million.

The first place in Europe where facemask wearing became compulsory in public transport was in Slovakia's largest cities, and the regulation did not come up by chance. In fact, it had been the result of the honest and selfless work of several engaged people who collected and synthesised scientific data, and of the thoughtful assessment by decision-makers.

In the end, it may turn out that Slovakian representatives evaluated the available data on facemask wearing earlier and perhaps even better than many leading health agencies, including the World Health Organisation (WHO) or the US Centre for Disease Control and Prevention (CDC).

Both organisations have, until recently, refused to recommend facemasks for the general population; mass wearing of cloth facemasks has not been recommended either.

The beginning of the story of facemask wearing in Slovakia can be dated long before the COVID-19 epidemic spread to our country.

Like all surgeons, I have had my own experience with facemasks. We know that it is not a problem to spend many hours wearing facemasks – e.g. during brain tumour resections. In addition, in our country, those colleagues who are allergic to disposable masks use their cloth versions.

In late February, medical doctors in Slovakia paved the way for a larger, nation-wide debate, depicting the very alarming consequences of a coronavirus pandemic, approaching the subject in several blogs; they actively emphasised that if we all wore a facemask, the effect might be similar to that of collective immunity after vaccination.

At this point, I, like many others, began to think about how I could help the good cause. The idea was nothing more than to do the usual when it comes to preparation of any scientific publication: summarisation of (at least) basic data – in this case, data on the impact of cloth and/or disposable facemasks wearing on the spread of respiratory infections.

Despite the original pessimism of WHO and CDC, it seemed to be highly probable that countries with facemask-wearing tradition were somehow more successful in fighting COVID-19.

**The beginning of the story of facemask wearing in Slovakia can be dated long before the COVID-19 epidemic spread to our country.**

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According to WHO, besides contact routes, SARS-CoV-2 virus is primarily transmitted among people through droplet transmission – i.e. via particles  $>5\ \mu\text{m}$ , so-called “respiratory droplets”.

Surprisingly, according to a study funded by US National Institute for Occupational and Safety and Health (NIOSH), even home-made cloth facemasks may offer marginal protection against much smaller particles  $<1\ \mu\text{m}$ ; thus, cloth mask might potentially offer some protection even against so-called “droplet nuclei” (aerosol particles  $<5\ \mu\text{m}$ ).

Important data was also found in several other publications – e.g. regarding the protection of nearby healthy persons when the facemask is worn by an infected person.

Of note, in a study published in PLOS One, the essential role of early deployment of facemasks in a population at risk for a viral respiratory infection epidemic was described – presented mathematical models showed the crucial role of the initial number of infected people.

I was lucky enough to have the opportunity to discuss this basic “literature review” with several important Slovak scientists, and also with Martin Barto, a Slovak politician formerly involved in mathematical modelling. On 6 March, Barto became the first Slovak politician to emphasise the potential benefits of wearing facemasks in public.

On 8 March, our work and discussion resulted in a short summary of basic data regarding COVID-19 and facemasks, which included two papers published in a world-renowned magazine “The Lancet”.

In the first paper, the authors consider case isolation and contact tracing alone to be insufficient to control a disease outbreak, and in the second, the authors called for a consideration of mass wearing of facemasks for effective source control in community settings.

The summary was delivered to some Slovak politicians and stakeholders, including the chairman of the Slovak Medical Doctors Trade Union. It was also shared by the most popular satirical social media page in Slovakia, Zomri.

In parallel, the initiative titled Facemask is not a shame kicked off on 10 March, and a day later the Call of the Slovak health professionals on COVID-19 management followed, signed by almost 15,000 people.

Particularly crucial was the activity of the then designated Minister of Health, Marek Krajčí. Based on his own evaluation of provided data, he has

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been advocating facemask wearing since 12 March, perhaps as the first minister in the EU.

On 13 March, during one of the most-watched live TV programmes, designated prime minister Igor Matovič and Marek Krajčí wore facemasks, it was a situation conditioned by data knowledge. The idea of the TV presenter, one of the leading figures in Slovak journalism, to put on masks while broadcasting live and wear them without hesitation for the entirety of the show, turned out to be largely symbolic for the whole country.

The same day, outgoing prime minister Peter Pellegrini also encouraged people not to hesitate about wearing facemasks. The initial use of disposable medical facemasks was later largely replaced by cloth facemasks, as the more efficient medical facemasks were in short supply and had to be reserved for healthcare workers.

Days after, photos of Slovak President Zuzana Čaputová and representatives of the new Slovak government all wearing facemasks literally travelled around the world. On 16 March, the largest cities introduced the first regulation on compulsory (cloth) facemasks in public transport, the very first such legislation in Europe.

Nowadays, more and more European cities and countries have adopted similar rules, and since 3 April, CDC recommends wearing cloth facemasks.

To sum up, the first politicians in the EU who promoted facemasks by wearing them in public, have been from Slovakia.

Nevertheless, the most decisive role was and is played daily by all the people in our country, who have accepted and honestly adhered to the obligation to wear masks, to the amazement of many in Europe. Of course, a big thanks also goes to the Slovak media, whose editors and presenters are setting an example every day.

Nevertheless, it is exceptionally important to emphasise that facemasks are not some “miracle help” in the fight against COVID-19.

All other measures – including social distancing, correct hand washing etc. – are important, and facemasks can by no means substitute those. The war against SARS-CoV-2 virus is far from over... However, facemasks could represent an additional help, and perhaps time will show them to be of the important, life-saving factors during the COVID-19 crisis.

eurativ.com, 28 April 2020

<https://www.euractiv.com>

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### What does junk food have to do with COVID-19 deaths?

2020-04-28

Each story is heartbreaking.

A five-year-old Michigan girl died on April 19 after being diagnosed with COVID-19. A 50-year-old bus driver, also from Michigan, died on April 1 from complications of the virus. And a 95-year-old Kansas woman who lived in a retirement community died on March 27.

With stunning speed, the novel coronavirus has killed more than 56,000 people living in the United States so far this year. Though most of the more than 1 million known to be infected do not become seriously ill (many do not even show symptoms) those who are hardest hit often suffer frighteningly rapid declines.

As scientists struggle to understand the overall magnitude of the virus and how to best address it, there are certain established truths that we can no longer afford to take for granted when it comes to protecting our health in the future.

One key truth: The quality of our food is essential to the quality of our health.

The food choices we make every day have a profound long-term impact on virtually every aspect of our well-being. And, as medical professionals track the pandemic, it is becoming increasingly clear just how much that matters in times like these.

Roughly half of the people who have been hospitalized with the new virus are obese, according to data from the Centers for Disease Control and Prevention. The CDC says those individuals who are obese are at «higher risk for severe illness» from COVID-19.

Obesity, scientists know, is a diet-driven condition that contributes to many other serious health problems. Being overweight is strongly linked to the development of type 2 diabetes, for instance. Thus it is not surprising that the CDC has found, along with the 48 percent of the COVID-19 victims who are obese, 28 percent of those hospitalized with the virus have diabetes.

The New York Times reported that young people who are obese are at particular risk and that overall obesity may be «one of the most important predictors of severe coronavirus illness.» That is no small matter in a nation

**One key truth: The quality of our food is essential to the quality of our health.**

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where more than two-thirds of adults and nearly one-third of children and youth are obese.

The findings are particularly frightening for African-Americans and other people of color, who account for a disproportionate amount of obesity in the United States and are tragically proving to make up a disproportionate share of COVID-19 deaths.

As the casualties climb it is important to note that there are many complex factors fueling obesity in African-American communities. But some are easily addressed, such as the daily drumbeat of aggressive junk food marketing aimed at people of color.

University of San Diego professor Aarti Ivanic, who studies the intersection of race and food marketing, has found that many companies target their advertising of unhealthy fast food and junk food to Black and Hispanic populations while promoting more healthy food choices to affluent White consumers.

Her work is supported by a report released last year by the Council on Black Health and the University of Connecticut Rudd Center for Food Policy & Obesity that found restaurants, food, and beverage companies often target Black and Hispanic consumers for their least nutritious products, primarily fast-food, candy, sugary drinks, and snacks.

The American Medical Association has recognized the dangers of this targeted marketing and has warned that that junk food advertising is so detrimental to the health of all young people—Black and Hispanic youth in particular—that it should be sharply limited.

Jennifer Harris, senior research advisor at the Rudd Center, told EHN these companies targeting youth in communities of color with their junk food advertising should be held responsible for “putting their profits over young people’s health—and even their lives.”

“Folks in the public health nutrition world are hopeful that this pandemic shines a spotlight on the tragic consequences of the health disparities created by inequalities in our food systems,” she said.

The Harvard T.H. Chan School of Public Health has issued guidance saying it is «imperative for governments to promote policy and environmental changes that make healthy foods more accessible and decrease the availability and marketing of unhealthful foods.»

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It should not take a pandemic to cure Americans of their complacency on this issue. After all, it is no secret that diet-related chronic disease has been on the rise in this country for decades and now impacts about half of all American adults, or more than 100 million people, according to the U.S. Department of Health and Human Services.

Much of the blame is directly due to the poor quality of the food people are eating, the agency states.

The death march of this disease through our nation's chronically ill population should be a wake-up call for all Americans.

Food quality, food access, food marketing and food choices are not casual concerns. They are proving, more than ever, to be matters of life and death.

[ehn.org](http://ehn.org), 28 April 2020

<https://www.ehn.org>

### **Jakarta's Trash Mountain: "When people are desperate for jobs, they come here"**

2020-04-27

BEKASI, Indonesia — Even in the pouring rain, in the middle of the night, they are out scavenging, wearing headlamps to scan a mountain of rotting garbage more than 15 stories high.

The trash pickers, some trudging up the heap in mismatched plastic boots, use a hooked metal tool called a "ganco" to flip items over their heads and into large rattan baskets strapped on their backs. A few sort through the trash with their bare hands.

The stench is overpowering, but it's only one of many workplace hazards. As they pick through the jumble looking for discarded wood, cardboard, plastic tarps and anything else that can be recycled, they must be careful not to come too close to the bulldozers distributing the waste across an ever-rising plateau. Landslides are a constant danger.

This is Bantar Gebang, one of the world's largest landfills, more than 200 football fields in size, accepting as much as 7,000 tons of waste a day from Jakarta, Indonesia's capital. Processing all that trash is a 24-hour operation. On a typical day, a thousand orange trucks, filled with garbage and surrounded by hordes of buzzing flies, line up at the base of the landfill to dump their loads. Like a mechanical bucket brigade, giant excavators then relay the waste to the top, more than 150 feet above.

**This is Bantar Gebang, one of the world's largest landfills, more than 200 football fields in size, accepting as much as 7,000 tons of waste a day from Jakarta, Indonesia's capital.**

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Dozens of squalid villages have sprung up around the mountain. Officials say about 6,000 people reside near the landfill, eking out a living from the trash. Local residents put the number at 20,000. In some families, children as young as 5 scour for usable trash alongside their parents, said Asep Gunawan, the head of Bantar Gebang district, which includes the landfill. "They have kindergarten and Quran study there, and when they finish that, they help their parents," Mr. Asep said. "It is easy to pick trash with just an iron stick. And they have no other choice."

The trash pickers, known in Indonesian as "pemulung," typically earn from \$2 to \$10 a day, from the plastic, metal, wood and electronic waste they collect. Even animal bones have value, used to make jewelry or as an ingredient in floor tiles or concrete.

A few entrepreneurs have set up makeshift shelters on wooden pallets where they sell drinks, snacks and cigarettes to those working the pile.

When the facility is operating at full tilt, hundreds of scavengers swarm around the heavy equipment rumbling on the mountain. But the global economic slowdown caused by the coronavirus pandemic has reached even here, adding to the misery.

Most recycling companies that buy waste from the trash pickers have closed their doors, so fewer pemulung are working because they have no place to sell what they collect, said Resa Boenard, co-founder of Seeds of Bantar Gebang, a nonprofit helping the community.

New social distancing rules imposed by the provincial government took effect this month in Bantar Gebang, prompting even more trash pickers to stay off the pile.

"Since the virus has spread around the world, it has made life even harder now," Ms. Resa said. "Most of them are staying at home because they cannot sell plastic anymore." As of Sunday, Indonesia had reported 8,882 confirmed cases of the coronavirus, with 743 deaths. Jakarta, a city of about 11 million, has been the hardest hit, with about half the confirmed cases. The virus has also spread to neighboring communities, including Bekasi, where the landfill is.

No cases of the virus have been reported in the landfill's villages, but no one has been tested there, either, said Mr. Asep, the district head. The trash pickers don't qualify for government coronavirus aid because they are not registered as residents.

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There is a widespread belief in Indonesia that living in unsanitary conditions helps people build immunity to diseases like the coronavirus — an unscientific view that will be put dangerously to the test in the landfill's shantytowns. "People in Bantar Gebang are not really scared about this virus," said Ms. Resa, 34. "I don't see it has really changed their habits."

She was 6 when her family moved to the area. Her parents bought a rice field, but it was eventually swallowed up by the ever-growing mountain of trash.

At school, other children called her "Princess of the Dump" because her clothes smelled of the landfill. The nickname stuck. But she excelled in her studies and a Turkish family gave her a scholarship to help her through university.

She could have been one of the few to escape the landfill for a better life, but she returned to help the families there, especially the children.

Now, with the economic slowdown, her organization helps feed 600 families a day and has launched a campaign seeking donations.

"People don't need masks or hand sanitizer," she said. "People need food to feed their families."

One volunteer in the makeshift community is Juni Romanti Ezer Laumakani, a soap salesman who lives about 20 minutes away. He has been giving children at the dump free guitar lessons for 15 years. Because of the pandemic, he stopped the lessons a month ago but still visits the villages to check on the families and offer encouragement. "Even though they have collected a lot of trash, they have no place to sell it," said Mr. Juni, 40. "So those things have no value. And it's stressing them out, too. There's no income but they still have expenses."

The landfill opened more than 30 years ago, and residents of the surrounding district have long complained about the stench and the skin problems they suffer.

"The ground water in the landfill area is contaminated, and they cannot use the water anymore," said Mr. Asep, the local official. "All of the people are upset."

Most of those who have migrated to Banter Gebang were farmers whose crops failed during the dry season. Some have stayed for a decade or more.

"When people are desperate for jobs, they come here," Ms. Resa said.

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Although fewer trash pickers are working, the garbage trucks keep coming. Many items that could be recycled are instead being buried under the incoming crush.

Ms. Resa hopes Jakarta residents will get the message to throw away less stuff.

“We are telling people in Jakarta, ‘please reduce your waste,’” she said. “We can’t process it because we can’t sell it. It just makes the mountain grow higher.”

[nytimes.com](https://www.nytimes.com), 27 April 2020

<https://www.nytimes.com>

### New Zealand calls for thousands of new ‘green’ jobs in bold comeback plan

2020-04-27

There’s plenty of speculation over the origins of the pandemic that has ground much of the world to a halt. But there’s little doubt about who caused it. As a panel of international scientists noted in a release issued this week, «There is a single species that is responsible for the COVID-19 pandemic — us.»

The statement — authored by professors Josef Settele, Sandra Díaz, Eduardo Brondizio and zoologist Peter Daszak — goes on to point the finger squarely at our obsession with “economic growth at any cost.”

“Rampant deforestation, uncontrolled expansion of agriculture, intensive farming, mining and infrastructure development, as well as the exploitation of wild species have created a ‘perfect storm’ for the spillover of diseases from wildlife to people.”

Now, the real question is how do we make things right in the world, while avoiding the mistakes that brought us here in the first place? At least one major political party thinks it has the answer.

This week, New Zealand’s Green Party unveiled an ambitious plan to get the country back to work and the gears of industry turning once again, in environmentally friendly fashion.

And all for the tidy sum of \$1 billion.

It may seem like a lot, but the cost pales in comparison with what we’re paying in lost economic output from this pandemic. Early estimates peg

**This week, New Zealand’s Green Party unveiled an ambitious plan to get the country back to work and the gears of industry turning once again, in environmentally friendly fashion.**

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that tally at around \$2.7 trillion, which is about the entire GDP of the United Kingdom.

So what does a billion-dollar stimulus plan buy, according to New Zealand's Green Party? For one thing — and likely at the top of everyone's minds — the plan would create jobs. It promises to create employment for 7,000 people over the next three years, all in industries that have been pummeled by the pandemic. For New Zealand, that would be tourism. But the catch is these would be "green" jobs, with people working to help build and sustain the country's chief tourism draw: nature.

"These work opportunities are well suited to those who have worked outdoors such as tourist guides currently out of work, have people and project management skills or who want to quickly retrain and get their hands dirty helping nature," notes Eugenie Sage, a Green Party member who also serves as environment minister, [in a press release](#).

"Our tourism industry depends on the health of our nature, and culture, and so it is important to invest in this critical infrastructure, rather than just bulldozers and asphalt."

The plan calls for plenty of building projects, only they would focus not just on reviving the economy, but also the environment. It includes funding, for instance, to save Raukūmara Conservation Park from the invasive deer and possums that have taken it over. As well, there are details on how to bring native birds back to the country. Other projects would restore the country's ailing freshwater reserves, create carbon sinks and natural buffers against rising sea levels.

"This investment creates thriving native forests and wetlands, assets that last centuries and suck carbon out of the atmosphere," Sage explains. "It will avoid future pest control costs, better buffer coastal areas from sea level rise and provide corridors for birds to come back to neighbourhoods."

"There are all sorts of exciting projects across the country that are planned and ready to go, and this funding could see them get started immediately."

That's not to say the shiny, green plan is guaranteed to become a reality. The party, which is part of a ruling coalition, has yet to officially present it to the legislature. For now, it's been adopted as Green Party policy. And, as Michael Nelson [writes in the New Zealand Herald](#), "in the past, coalition partners have not been particularly friendly to some Green Party environmental proposals."

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Indeed, the party's recent call for \$9 billion to be spent on electric trains as a sustainable and practical alternative to cars may also face an uphill climb.

But then again, the New Zealand model, if adopted, could be just the fresh inspiration the rest of us need to reboot a post-COVID world. One thing, at least, is certain: we can't go back to the way things were.

As scientists noted in their statement this week, the world needs "transformative change" across the board. That includes fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values, promoting social and environmental responsibilities across all sectors.

"As daunting and costly as this may sound — it pales in comparison to the price we are already paying."

[mnn.com](https://www.mnn.com), 27 April 2020

<https://www.mnn.com>

### "COVID-19" thermal cameras start to hit the marketplace

2020-04-24

Elevated body temperature detection cameras are hitting the market like a Texas tornado, and the market for "COVID-19" may be worth billions of dollars this year. It is certainly the fastest growing segment in the security industry today.

So, what happens when the pandemic is over, provided it does end this year? Currently, the physical products that we all know, such as video surveillance cameras, are on a somewhat downward spiral, meaning there is a downward sales pressure on camera manufacturers.

It seems that camera manufacturers who can respond to the "fever camera" demand can put themselves in an enviable position of a long-term win over the next year or so. Who wins, who loses?

**Hanwha Techwin**

**Hanwha Techwin is using its thermal imaging technology that will be able to detect body temperature, company officials said.**

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Hanwha Techwin has confirmed that they are entering this market, and they are developing a temperature detection camera that is expected to make its debut later this year. Hanwha Techwin is using its thermal imaging technology that will be able to detect body temperature, company officials said.

“We believe that body temperature detection cameras and other technology will play an important role in the future,” said Miguel Lazatin, senior director of marketing at Hanwha Techwin America.

Timing and specifications have yet to be determined. Hanwha Techwin could easily make this a sizable opportunity for the company, depending upon time to market for its product. The release date is scheduled for Q4 this year. Prices for such equipment are yet to be determined.

[securitytoday.com](https://www.securitytoday.com), 24 April 2020

<https://www.securitytoday.com>

### Europe's airlines rebel against social-distancing jet set

2020-04-29

Coronavirus social-distancing measures will not work on board aircraft, Europe's airlines say, as the aviation industry and governments consider how to get planes back in the sky. But carriers elsewhere are willing to trial new ideas.

Air travel has ground to a halt because of the virus outbreak and airlines are struggling to stay afloat as they burn through cash reserves. Most are dividing their time between operating skeleton services, requesting state aid and planning for life after lockdown.

EU transport ministers meet virtually later on Wednesday (29 April) when they will discuss plans to resume services. The European Commission is drafting a strategy to that end which its officials hope to publish in mid May.

Some carriers have already rolled out measures such as blocking out the middle seat on the few flights they are still operating and requiring passengers to wear masks. Airports have also deployed the same social distancing requirements seen in city centres and supermarkets.

**Some carriers have already rolled out measures such as blocking out the middle seat on the few flights they are still operating and requiring passengers to wear masks.**

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But Europe's main airlines, including Air France-KLM, Lufthansa and the IAG group are wary about the upcoming EU guidelines. In a letter, sent by industry group A4E to ministers, they insist that "social distancing is neither necessary nor viable on board an aircraft".

"Measures and regulations must be proportionate by reflecting the actual risk levels," the letter adds but acknowledges that passengers must be guaranteed access to personal protective equipment, such as masks.

The letter adds that any coronavirus measures that are introduced should be temporary and paid for by the state, while biosafety precautions, such as taking the temperature of passengers, should only be conducted by qualified professionals.

### **Germany divided over how to bail out flyers**

Germany's government granted low-cost airline Condor more than half a billion euros on Monday (27 April) to help it ride out a virus-induced slump in air travel, but the fate of the much bigger flag-carrier Lufthansa is still very much up in the air.

Costs are top of most airlines' worries at the moment. Lufthansa says that it is losing €1 million an hour due to lack of business, while others like Scandinavian and Norwegian have furloughed workers en masse.

IATA estimates that airlines have to hit 87% of filled capacity in order to break even. In most cases, blocking out the middle seat prevents companies from getting close to that target.

Ryanair CEO Michael O'Leary recently said that his company would not resume business if blocking the middle seat is made a compulsory requirement, warning it would ruin the Irish carrier's business model.

O'Leary said in an interview that "the middle seat doesn't deliver any social distancing, so it's kind of an idiotic idea that doesn't achieve anything anyway".

According to health experts, people should maintain a distance of two metres in order to reduce the risk of viral infection. Given the size of modern aircraft cabins, passengers would have to be allotted roughly seven seats in order to have enough space.

That has not stopped other airlines from embracing the middle seat idea. Japan Airlines announced this week that all domestic flights would operate the policy through to the summer, while Ryanair rival easyJet says it is viable while demand is low.

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Others like US flyers American Airlines JetBlue will require all passengers and crew to wear masks as of May.

euractiv.com, 29 April 2020

<https://www.euractiv.com>

### **Australia could get 90% of electricity from renewables by 2040 with no price increase**

2020-04-29

Australia could get 90% of its electricity from renewable energy by 2040 without an increase in power prices, according to an analysis by the energy and carbon consultancy RepuTex.

Under current government policies, the country is on track to have 75% of its electricity generated by renewables within 20 years, but the analysis suggests a weak federal policy framework would lead to wholesale prices rising for a period after 2030.

RepuTex's latest outlook for the national energy market finds investment driven by state policies, including renewable energy targets in Victoria and Queensland, will help keep wholesale electricity prices down throughout the 2020s.

But it says wholesale prices would rise again in the 2030s without federal policy to encourage investment in new clean energy generation before ageing coal-fired power stations close.

RepuTex examined two scenarios, one that forecasts wholesale electricity prices under current government policies, and another that forecasts prices under the Australian Energy Market Operator's more ambitious "step change" scenario that uses a carbon budget in line with the Paris agreement. It has made a [summary](#) of its report and methodology, but not the full report, available on its website.

Under current policies, Australia would reach 50% renewable energy by 2030 and 75% by 2040, despite the absence of a federal policy framework beyond the underwriting of new generation investment scheme.

The report finds new investment would be driven by state-based policies and renewable energy targets, which RepuTex forecasts would bring about 17 gigawatts of new capacity by 2030, along with 4GW of rooftop solar and 3.5GW of new storage capacity.

**Under current policies, Australia would reach 50% renewable energy by 2030 and 75% by 2040, despite the absence of a federal policy framework beyond the underwriting of new generation investment scheme.**

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The falling costs of clean technology would put pressure on coal and gas generation and lead to 18GW of thermal capacity exiting the market by 2040. It forecasts wholesale prices would remain at roughly the current level, between \$50 - \$70 a megawatt hour, over the next 10 years. Wholesale electricity prices have fallen by nearly 50% over the past year.

“As new renewable energy and storage projects such as Snowy 2.0 are commissioned, along with the continued uptake of small-scale resources, traditional volumes for black coal and gas-fired capacity are likely to be eroded,” RepuTex’s head of research, Bret Harper, said.

But the report finds that a disorderly closure of coal-fired power stations would push wholesale prices up in the 2030s in the absence of federal policy to guide investment.

RepuTex found that an increase in wholesale prices could be avoided under the more ambitious scenario, forecasting that average annual prices in the 2030s would remain below \$80/MWh. The step change scenario sets out an emissions budget for the electricity sector that would lead to decarbonised energy systems by 2050, in line with the Paris agreement commitment of keeping global heating below 2C.

RepuTex forecasts this scenario would lead to Australia reaching 70% renewable energy generation by 2030 and 90% in 2040, and that the combination of more renewable energy, improved storage technologies and a carbon budget would be “fatal” for coal-fired power.

“The most interesting thing is we can have this decarbonised energy system and it won’t cost any more,” Harper said.

“In fact, it costs slightly less. Just in the last year even, energy storage costs have really come down, whether it’s battery or pumped hydro.”

[theguardian.com](https://www.guardian.com), 29 April 2020

<https://www.guardian.com>

## The toxic chemicals in our homes could increase COVID-19 threat

2020-04-29

During the rare moments you’ve ventured outside these days, you’ve probably noticed clearer skies and the benefits of reductions in air pollution.

**These chemicals, used to keep food from sticking to surfaces and our clothing free of oily stains, are widely found in the US water supply.**

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Long-term exposure to air pollution increases the danger associated with four of the biggest Covid-19 mortality risks: diabetes, hypertension, coronary artery disease and asthma. It also can make the immune system overreact, exaggerating the inflammatory response to common pathogens.

But there are other common contaminants in our homes that are also likely to be hacking our immune systems, which have had less attention.

You've probably heard about synthetic chemicals in non-stick pans, cosmetics and aluminum cans disrupting our hormones. The notion of endocrine-disrupting chemicals was only widely accepted about a decade ago, when scientific societies raised the alarm. The science of immune disruption is even newer, with a large review in a major scientific journal just out last year.

You may have heard of "forever chemicals", or perfluoroalkylsubstances (PFAS) from the movie *Dark Waters*, with Mark Ruffalo. These chemicals, used to keep food from sticking to surfaces and our clothing free of oily stains, are widely found in the US water supply. We're talking about chemicals that 110 million Americans drink each day that increase the death rate of mice exposed to influenza type A. Children exposed during pregnancy have worse immune responses to vaccines, with weaker antibody responses. Studies in Norway, Sweden and Japan have found greater difficulties in children with various infections, ranging from colds to stomach bugs to ear infections.

Bisphenol A, or BPA, which is found in thermal paper receipts and aluminum can linings, has been found in the laboratory to increase the body's release of a molecule called interleukin-6, or IL-6, that may be involved in the raging wildfire inside the lung that has already killed so many from coronaviruses. One of the more promising treatments for coronavirus patients is tocilizumab, an antibody to IL-6. Phthalates, used in cosmetics, personal care products and food packaging, alter levels of cytokines, which are key players in the immune response to coronavirus. Is the evidence perfect? Hardly. And we have to rely on observational studies – you can't run a randomized controlled trial of potentially toxic mixtures of virus and chemical exposures. There are ethical and logistical challenges to running these kinds of studies. But absence of evidence doesn't mean absence of harm.

Long-term lifestyle changes

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Will preventing these exposures now change exposure to the novel coronavirus? No. Stay home, wash your hands with soap and water at least 30 seconds at a time, and keep your social distancing game strong. Right now, we need to keep as calm as we can and carry on as best we can. We've overcome other disasters – 9/11, Katrina and Sandy, to name just a few. And once we return to normal, we can limit these exposures in our daily lives – using cast iron and stainless steel instead of nonstick pans, avoiding canned food consumption, and reducing the use of plastic in our lives.

But when we return to normal, we have to ask ourselves how and why we got here, just like we did for those disasters. West Nile, Zika, dengue, Ebola and other infections are on the rise, and they are attacking us when our immune defenses are being attacked by preventable contaminants in the environment. Government and industry have dragged their feet time and again to limit these exposures because of intense economic pressure. You've probably heard that the US Environmental Protection Agency (EPA) has used the coronavirus pandemic to waive its enforcement rules, allowing companies to pollute without consequences.

But it's not just at the EPA where science has undermined human health over chemicals that can affect the immune system. The Food and Drug Administration (FDA) has failed to protect kids from known hazards in food packaging and other contact surfaces, allowing industry to vouch for safety without careful study of potential adverse effects. And when negative effects are found, the FDA is limited in its ability to require companies to stop using toxic ingredients in its materials.

Infections are not just something we vaccinate away or treat. New infections will emerge even more in the future if we don't appreciate the consequences of messing with Mother Nature and realize our immune systems are being hacked, too.

theguardian.com, 29 April 2020

<https://www.theguardian.com>

### Study unveils new technology to turn waste PET into battery components

2020-04-29

Purdue University researchers have created a technique to turn waste polyethylene terephthalate, one of the most recyclable polymers, into

**The researchers use an ultrafast microwave irradiation process to turn PET, or polyethylene terephthalate, flakes into disodium terephthalate, and use that as battery anode material.**

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components of batteries.

### Ultrafast Microwave Irradiation Process

The researchers use an ultrafast microwave irradiation process to turn PET, or polyethylene terephthalate, flakes into disodium terephthalate, and use that as battery anode material. Researchers are helping to address the growth in the proliferation of renewable energy conversion and storage, which stems from the societal attention and increasing awareness of climate change and energy resource limitation.

The Purdue team tried the approach with both lithium-ion and sodium-ion battery cells. The lithium-ion technology is currently dominating both the portable electronics and electric vehicles market, sodium-ion battery research also has gained significant attention due to its low cost and appealing electrochemical performance in grid applications.

*"The applicability of the microwave technique on organic reactions has gained attention in recent times due to its advantage of the rapid reaction process," Vilas Pol, a Purdue associate professor said. "We have accomplished the complete conversion of PET to disodium terephthalate within 120 seconds, in a typical household microwave setup."*

Pol said the materials used in the Purdue technology are low-cost, sustainable and recyclable.

omnexus.specialchem.com, 29 April 2020

[https://omnexus.specialchem.com/news/industry-news/technology-waste-pet-battery-000221523?lr=iom20041931&li=200183459&utm\\_source=NL&utm\\_medium=EML&utm\\_campaign=iom20041931&mi=G3e6IH98Jr6wA\\_TP6%2B\\_VIIJAzXw3uRDp7IDGPhhjAZo6oQv5MYN3TJWo0W%2B%2BRLOyu29bNZXZ%2B\\_cGG8ZadRBcRLex68n8Gj](https://omnexus.specialchem.com/news/industry-news/technology-waste-pet-battery-000221523?lr=iom20041931&li=200183459&utm_source=NL&utm_medium=EML&utm_campaign=iom20041931&mi=G3e6IH98Jr6wA_TP6%2B_VIIJAzXw3uRDp7IDGPhhjAZo6oQv5MYN3TJWo0W%2B%2BRLOyu29bNZXZ%2B_cGG8ZadRBcRLex68n8Gj)

"><https://www.omnexus.specialchem.com>

**On Saturday morning, a tropical depression formed in the eastern Pacific Ocean — the earliest tropical cyclone in that area since reliable record-keeping began in the early 1970s.**

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### Don't look now, but the 2020 Atlantic hurricane season could break records

2020-04-29

Parts of the Atlantic, Pacific, and Indian Oceans saw record-high temperatures last month. Meanwhile, the average ocean temperature worldwide came in just shy of the record set in 2016.

On Saturday morning, a tropical depression formed in the eastern Pacific Ocean — the earliest tropical cyclone in that area since reliable record-keeping began in the early 1970s.

These two facts are related: Warming water is changing the size and frequency of tropical storms. And new forecasts show that this year's Atlantic hurricane season, which will take place between June and November, is shaping up to be among the worst we've ever experienced.

Last week, Penn State's Earth System Science Center released its predictions for the 2020 Atlantic hurricane season. The team of scientists, which include renowned climate scientist Michael E. Mann, said we could be looking at between 15 and 24 named tropical storms this year. Their best estimate is 20 storms. It could be one of the most active hurricane seasons on record.

That's assuming there's a La Niña — a weather pattern that blows warm water into the Atlantic and helps dredge up cooler water in the Pacific, sometimes leading to more tropical storms in the Atlantic Ocean and fewer in the Pacific. If a La Niña *doesn't* develop, then the scientists predict slightly fewer Atlantic hurricanes this year: between 14 and 23 storms. But signs are pointing toward cooling ocean temperatures in the Pacific over the next several months, which could prevent an El Niño — La Niña's opposite half, which suppresses storms in the Atlantic — from forming. That portends a busy Atlantic season ahead.

In order to get their results, Mann and his team looked at El Niño–Southern Oscillation — the periodic back-and-forth between El Niño or La Niña — in addition to Atlantic sea surface temperature anomalies in April and climatic conditions in the Northern Hemisphere. The scientists relied on a statistical model that considers the relationship among a large number of climate factors (water surface temperature, humidity, water vapor, etc.) and the historical Atlantic tropical cyclone record. The actual number of named tropical storms has either fallen within the model's predicted range or exceeded it every year that the scientists have made a prediction since 2007.

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Mann's model isn't the only Atlantic hurricane forecast out there predicting a busy season. The Weather Company's outlook predicts 18 named storms, nine hurricanes, and four major hurricanes (category 3 or higher). Colorado State University also predicts a busy season, with 16 named storms, eight hurricanes, and four major hurricanes. The 30-year average is 12 named storms, six hurricanes, and three major hurricanes. The National Atmospheric and Oceanic Administration will release its official outlook in late May.

Just because the forecast says the Atlantic is going to have an active hurricane season doesn't mean that each of those predicted storms will hit land — there's no way to predict that this far out. But we do know that the storm-suppressing El Niño looks like it's going to take a sabbatical this year. The news couldn't come at a less opportune time. The United States and other countries bordering the Atlantic already have their hands full with the coronavirus pandemic. Another disaster on top of that could strain our already-buckling disaster response system.

grist.org, 29 April 2020

<https://www.grist.org>

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### How the pandemic is creating a plastic boom

2020-04-28

Instead of taking CSA members' cloth bags and returning them filled with fresh vegetables, farmers Jesse Frost and Hannah Crabtree delivered mid-April shares in plastic bags. And for the weekly farmers' market in Lexington, Kentucky, they used smaller plastic bags to individually package their greens, which would normally be loose in bins for shoppers to reach into.

Single-use plastic doesn't align with [Rough Draft Farmstead's](#) commitment to environmentalism. But as they [hustle to reinvent their business plan](#) for 2020 while continuing to produce and sell food during a pandemic, they've had to adjust the hierarchy that determines their priorities, Frost said.

"Everything's kind of been scrambled," he said. "The first thing we have to do is figure out what our marketing approach is. Then, figure out what the distribution looks like. Then, we have to figure out how to keep all of those things sanitary."

As [farmers](#), [farmers' markets](#), grocery stores, and [restaurants](#) have all raced to [confront a quickly reordered reality](#), the qualities that contributed to single-use plastic becoming such a ubiquitous problem over decades—it is incredibly cheap and convenient—are contributing to a resurgence in use. And it's happening at a time when the recycling of plastic [has been severely curtailed](#).

Top of Form

Bottom of Form

"I'm probably using more plastic from one grocery trip than I normally would in months," said Abby K. Cannon, a Long Island-based [nutritionist](#) who also coaches clients on low-waste living.

While [there is no evidence](#) that the coronavirus is transmitted on food or that wrapping food in plastic is safer, all of the activities that surround the use of reusables—reaching, swapping, and sharing—are off limits. And throwing something away that came from outside the home and was touched by unknown hands simply feels safer.

Some grocery stores and counties have banned cloth bags, and more people are shopping for groceries online, which generally results in more plastic packaging. Farmers' market tables are now stocked with vegetables

**While there is no evidence that the coronavirus is transmitted on food or that wrapping food in plastic is safer, all of the activities that surround the use of reusables—reaching, swapping, and sharing—are off limits.**

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pre-packed into plastic bags, and CSA pick-ups that were once self-serve now involve plastic bags inside larger plastic bags or boxes. In addition, coffee shops that used to give discounts for bringing cups from home have stopped allowing them.

In the midst of this, the plastics industry has stepped in to spread misinformation about the dangers of reusable bags and has successfully reversed plastic bag bans in some states and cities. And now, the plastics recycling industry is asking for a \$1 billion bailout from the U.S. government.

It's clear that at the moment, concerns about the waste generated from single-use packaging, and especially plastic, in the food system will have to take a backseat to the immediate health, safety, and economic concerns that have arisen during the pandemic.

But activism to fight plastic waste during the pandemic persists: On April 22, a new documentary on the costs of plastic pollution premiered. And some say the temporary shift will be gradually worked out as we learn more about COVID-19 and the shape of the new economy—and that it could even lead to Americans asking deeper questions about sustainable habits.

### **Grocery Store Plastic and the Campaign Against Reusables**

Around the country, restrictions on reusable bags at grocery stores began to pick up steam as the coronavirus pandemic worsened.

The governor of New Hampshire banned reusable bags in the state in late March; San Francisco banned reusable bags in stores citywide at the beginning of April, California lifted a fee on plastic bags for two months at the end of April, and Maine delayed the implementation of a plastic bag ban that was set to go into effect in late April. Meanwhile, supermarket chains have implemented their own policies: Trader Joe's, for example, is not allowing reusable bags at any of its locations.

While many of these policies sprung out of an abundance of caution, *Mother Jones* recently documented how the plastics industry and affiliated think tanks are attempting to use the momentum to reverse plastic bag bans around the country. To do so, they are spreading false information about the dangers of coronavirus on reusables and asking the federal government to back that misinformation.

"We are asking that the Department of Health and Human Services... make a public statement on the health and safety benefits seen in single-

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use plastics," Tony Radoszewski, the president and CEO of the Plastics Industry Association, recently wrote [in a letter](#) to the Secretary of Health and Human Services. The federal government has not obliged, but the coordinated PR campaign has resulted in misleading news coverage, influenced public opinion, and led to local bans on reusable bags.

The strategy is nothing new: In the past, industry groups have [funded studies](#) that found bacteria on reusable bags. While scientists said the research merely pointed to the importance of washing bags, the industry has wielded it to fight plastic bag bans. In a new report, [Greenpeace documents](#) how exploiting concerns about COVID-19 is a continuation of a long-running misinformation campaign to overturn plastic bag bans.

However, [expert after expert](#) has detailed how there is no evidence that COVID-19 lives longer on cloth or cotton compared to plastic. (There have been no studies specifically on the coronavirus and reusable bags.) [One study](#) found the virus can live on plastic for a few days, versus 24 hours on cardboard. Overall, experts emphasize that the risk of contracting coronavirus from touching any bag is very low, and that most transmission occurs from breathing in particles when in close proximity to other people.

Still, at a time when more deaths of grocery workers are being reported, it makes sense to take every precaution to minimize contact with shoppers. Some stores, like Target and Mom's Organic Markets, are doing this not by banning reusable bags, but by requiring that shoppers bag their own groceries.

At Whole Foods, Long Island nutritionist Cannon normally does most of her shopping by filling her own containers in the bulk section. But the first time she hit the supermarket after the shelter-in-place order had been issued in New York, she couldn't bring herself to handle the shared scoops. "It made me afraid," she said. "Right now, I'd much prefer to get something prepackaged. I don't trust other people washing their hands, or even myself and my bags."

Plastic is also having a moment thanks to an increase in grocery delivery. A recent [Pew Research Center survey](#) found that one in five adults in the U.S. say they've used a "food delivery service" instead of going to a grocery store or restaurant, due to COVID-19.

On a recent afternoon, a delivery person, wearing plastic gloves and a disposable mask, carried about 15 plastic grocery bags from her van to a Baltimore, Maryland rowhouse and crammed them into the vestibule. Even companies like Whole Foods that deliver orders in paper bags

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often package individual food items inside those bags—like a bunch of bananas—in plastic. Grocery delivery relied on plastic before the pandemic, but shoppers who would have grabbed an unwrapped bunch of bananas and used reusable bags before are now relying on it.

However, there are exceptions to the new tendency toward plastic. Brooklyn-based [The Wally Shop](#), for example, applies bulk bin principles to online grocery, sending staple foods in reusable jars that shoppers send back to be cleaned and put back into circulation. In early April, the company opened up nationwide shipping for the first time and has been struggling to keep up with demand. In other words, many consumers are still okay with reusable packaging, it turns out, if social distancing is maintained.

### Plastic in Local Food Distribution

At the [National Young Farmers Coalition](#), Business Services Director Cara Fraver helps farmers understand and implement food safety practices, through services like the recent publication "[A Small Farmer's Practical Guide to Food Safety](#)." Fraver said that while even the small farms that didn't fall under specific food-safety rules mandated by [Food Safety Modernization Act \(FSMA\)](#) or [Good Agricultural Practices \(GAP\)](#) were often paying attention to safety before, coronavirus upped the ante.

"This is certainly a galvanizing moment of starting to take your food safety practices incredibly seriously [as a farmer], in the same way that we're all suddenly doing so much better with not touching our faces and washing our hands," Fraver said.

Some of those farm practices that are being adopted involve single-use plastic, like lining produce boxes with a new liner each time they're reused (a practice that was already required for some farms) and using lots of throwaway gloves. "That is a little antithetical to a lot of the reasons we see people excited about farming from an ecological standpoint," she said.

At farmers' markets, "everything is more likely to be pre-bagged," she said, and market-style CSA pick-ups that are especially popular on the East Coast are increasingly shifting to handing out pre-bagged or boxed shares. Some of these changes, Fraver noted, are being made to ease eaters' concerns at a time when everyone is scared and reliable information on the virus is not always easy to find.

"It's not just what is safe, it's also what is perceived as safe," she said. A good example is that while strict hand washing protocols can be more

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effective than wearing gloves (especially if gloves are not being utilized properly), farmers wearing gloves at markets send a visual signal to shoppers about preventative measures.

Fraver also noted that a lot of the increase in packaging is not about food or containers being contaminated with the virus, it's about getting people out of markets and CSA pick-ups faster, since transmission is more likely to occur when individuals congregate.

### Finding Creative Solutions

Farmer Michael Protas of [One Acre Farm](#) in Dickerson, Maryland, was worried about that issue at his four CSA pick-up sites, which in past years have been executed market-style, with members bringing their own produce bags and totes to walk down a line while grabbing their food. "On Capitol Hill, we had 40 families that would come into a smallish garage ... and that's not gonna fly at the moment," he said.

Protas had always provided compostable [BioBags](#) for members who forgot their reusables, but switching to a pre-packaged system meant a major increase in the number of bags he'd need. "We're gonna be flying through these things," he said. He knew that would be cost prohibitive and that other small farms in the region were likely facing the same dilemma.

Instead of switching to much cheaper plastic bags, he proposed organizing a bulk purchase with other farmers in the Mid-Atlantic. Local nonprofit [Future Harvest](#) helped organize the endeavor, and 13 farms signed on; Protas placed an order for 27 cases of produce bags and 13 cases of T-shirt bags for the farms to use throughout the coming season.

More markets and farmers will figure out creative solutions as they gain confidence about safety and are able to calibrate to new systems. "Things are changing so dramatically and fast," Frost said.

At Rough Draft Farmstead, he sees space in the future to place bulk orders for boxes or paper bags or to reconsider reusable cloth bags. "We hope as the season goes on and we learn more about how the virus is transmitted, we can make decisions that keep us safe and the customers safe," he said.

It's the kind of push-and-pull decision making that nutritionist Cannon said is necessary right now. While she's alarmed (but not surprised) by industry efforts to reverse bag bans, for most individuals producing, shopping for, and eating food, cutting back on single-use packaging waste just might not be possible for a while.

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That doesn't mean Americans are putting their concerns about the environment aside. In fact, Kearney, a consulting firm, released the results of a [new consumer survey](#) on Earth Day. Nearly half of the respondents said the pandemic had made them more concerned about the environment. Fifty-nine percent said they are likely to use reusable shopping bags in the future; the biggest plans for future behavioral shifts that respondents reported were to decline plastic utensils and buy food in bulk.

For now, Cannon is focusing on other aspects of sustainable living. "I was crazy about food waste before, but it's next-level now. If something is going to go bad, it goes in the freezer, or I'm repurposing it and we're eating it. We're shopping less. We're working from home and not getting food on the go; we're not driving," she said. "I will be able to go back to bulk buying [at some point], I'm confident in that. But I think what this has made me realize is the conversation is about so much more than plastic and how I shop for food."

While learning to bake her own bread, [signing up for a CSA](#) to support local agriculture, and changing her three-month-old's cloth diapers, Cannon is thinking about self-sufficiency. "I hope that at the end of this, people are more mindful and are more open to having conversations about what it means to be sustainable," she said. "Right now, everything is very stressful, and things are going to come in plastic."

[civileats.com](https://www.civileats.com), 28 April 2020

<https://www.civileats.com>

### **No silver lining: Mexico City smog defies coronavirus lockdown**

2020-04-27

While city dwellers around the world take some consolation in improved air quality thanks to the coronavirus pandemic, festering garbage dumps, dirty diesel-fueled generators and frequent forest fires have ensured Mexico City remains smog-filled.

Traffic in the normally congested megacity of more than 20 million people has thinned dramatically as residents heed the government's call to stay at home to contain the spread of the virus that has killed more than 200,000 people worldwide.

**The broader urban area encompassing the capital is home to some 30 million people who have been cooking and heating water more since shelter-in-place restrictions began last month.**

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Yet as cities such as Delhi, Los Angeles and Seoul register sharp falls in pollution, the Mexican capital continues to report “poor” air quality on its official website, warning that exercising at certain times of day poses a “high” to “very high” health risk.

Reuters photographs taken last week from hills that ring the capital show a thick haze blanketing the city, set in a high-altitude basin where smog forms easily and lingers.

Even as millions stay indoors, increased domestic use of gas and other fossil fuels, methane seeping from open-air waste dumps and continuing emissions from the surrounding industrial sprawl have mostly nullified the clean air benefits of an economy on hold.

“We’re seeing that it’s come down from the peaks but it’s not enough to bring air quality below the norm,” said Sergio Hernandez, the capital’s general director of air quality.

Traffic is officially down by about 60% and is likely to fall sharply again once the city implements a one-week driving ban on passenger vehicles from Thursday.

The broader urban area encompassing the capital is home to some 30 million people who have been cooking and heating water more since shelter-in-place restrictions began last month.

Carlos Alvarez, head of Mexico Comunicacion y Ambiente, an environmental group, said the area had some 400 open-air dumps and 50,000 industrial generators in hotels, offices and businesses, many of which were still operating despite the quarantine.

The generators burn gas or diesel, a fuel also used by nearly 350,000 trucks and buses circulating in the area. Environmental experts say diesel is a leading source of harmful pollutants such as ground-level ozone and particulate matter.

The local mix of pollutants includes emissions from state oil firm Pemex’s refinery in Tula, north of the capital, and ash from the Popocatepetl volcano, visible on clear days to the southeast. Fires in forests ringing the city add to the problem, the national forestry commission said last week.

Mexico City’s air quality is markedly better than when the World Health Organization designated it the world’s most polluted city in 1992.

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But air quality is still poor, and linked to high rates of respiratory illness. Now, experts worry that COVID-19, the disease caused by the novel coronavirus, could prove more lethal in Mexico City than elsewhere.

“(Pollution) can be a serious issue once you get the disease,” said Roxana Trejo, who is in charge of looking after virus-infected patients at Mexico City’s ABC medical center.

Mexico had 14,677 known infections and 1,351 deaths as of Sunday. Officials recognize the true number of cases is unknown but sure to be many times higher.

“Any respiratory disease is exacerbated in places where people have compromised or irritated airways, or have to deal with large amounts of pollution,” said Rosa Maria del Angel, a researcher at Mexico’s National Polytechnic Institute.

[news.trust.org](https://www.news.trust.org), 27 April 2020

<https://www.news.trust.org>

### From Prosecco to Chianti, coronavirus sours Italy’s wine sales

2020-004-29

With Italy’s restaurants and bars closed for another month and global trade snuffed out by the coronavirus, the world’s top wine producing country is experiencing an existential crisis.

Italy’s 47.5 million hectolitres edged out France’s 42.1 million for last year’s global wine production title, although France’s €9.8 billion in exports beat out Italy’s €6.4 billion.

Making nearly a fifth of all the world’s wine and selling more than half of it at home, Italy’s two-month lockdown has hit the Mediterranean country’s winegrowers especially hard.

Lodovico Giustiniani, president of the Confagricoltura agricultural lobby in the vineyards filled region of Veneto, said the domestic market imploded when the restaurants and bars closed in early March.

But the situation has not been much better for exports. Sales to the world’s restaurants and wine bars were “now close to zero,” Giustiniani said.

**Making nearly a fifth of all the world’s wine and selling more than half of it at home, Italy’s two-month lockdown has hit the Mediterranean country’s winegrowers especially hard.**

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“The other channel, that of supermarkets, is still working, but it can’t compensate for the sales of a channel that is completely at a standstill,” he told AFP.

Giustiniani’s own winery, Borgoluce, whose Prosecco does not sell in supermarkets but is exported to the United States and Asia, saw its sales fall by 90% last month, he said.

### High end hurting

Some of Italy’s most prestigious wines are suffering from the worldwide lockdown.

For decades, Barolo has focused on “maximum quality,” earning a place on the wine lists of some of the world’s best restaurants, said Paolo Boffa, president of the Terre del Barolo cooperative.

Long considered a strength, that focus on the high end is now hurting Barolo makers, he said.

The situation “is very critical,” he said, given that 90% of Barolo is sold within the shuttered distribution channel of restaurants.

Other wines, such as Barbera or Dolcetto, are faring better due to their more attainable prices and supermarket availability.

Still, he said, “these sales cannot save the company’s balance sheet”.

Producers have not only sales to worry about, but logistics too. Since wine in cellars has not been sold, there will be no more room for the new wine usually taking its place that will be made after harvest this autumn.

The producers of Barolo are hoping to be allowed to store it outside the traditional production area, a practice normally not allowed under strict classification rules.

Another big question to ponder is whether to cut production, in light of current lower demand.

The Chianti Wine Consortium has already made such a decision to reduce production by 20%. The step, called “drastic” by its president, Giovanni Busi, would likely cause “serious economic damage to companies,” he said.

### ‘Sacrifices’

Some producers are also considering distilling part of their lowest quality wine in order to transform it into ethanol, used for the manufacture

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of hydroalcoholic gel, currently much in demand amid the lingering coronavirus crisis.

The wine cooperatives of France, Italy and Spain have appealed to the European Union to earmark 350 million euros towards a European distillation project of 10 million hectolitres.

Coldiretti, the Italian agricultural association, said it has presented the government with a plan to turn at least three million hectolitres of cheaper wine into disinfectant.

That solution could tempt those producers whose wine has little shelf life, Giustiniani said.

However, this is not an option for top-of-the-range reds such as Barolo, which can be kept for decades.

On Sunday, Italy's government announced that restaurants, bars and cafes would be allowed to open on 1 June.

Italy's wine industry, said Barolo producer Boffa, sees this as "great and beautiful news", although he expressed scepticism that restaurants and bars would be soon filled again.

"We all understand the seriousness of this epidemic and the crisis it will cause for our families. But we farmers are used to sacrifice and once again we will not give up."

[euractiv.com](https://www.euractiv.com), 29 April 2020

<https://www.euractiv.com>

### **Cleopatra: The ancient alchemist who quested for gold**

2020-04-29

The name Cleopatra probably conjures visions of heavy eye-makeup, snake arm-bracelets and perfume-drenched sails. But the Last Queen of Egypt wasn't the only Cleopatra who wielded extraordinary power in ancient times. All but forgotten today, Cleopatra the Alchemist has never merited a Hollywood epic, but she is thought to be one of the few ancient people to hold the secret of the philosopher's stone -- a mythical process for transforming base metals into gold, and an idea linked with eternal life.

If that all sounds a bit "Harry Potter," this mysterious Cleopatra has also been connected with specific inventions that helped give birth to modern chemistry: scientific tools for distilling liquid that were the precursor for

**She was essentially a pioneering proto-chemist.**

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myriad processes we use today involving plastics and chemicals, even vodka. She was essentially a pioneering proto-chemist.

Both Cleopatras lived in the seething cosmopolis of Alexandria on the Mediterranean, but they were born centuries apart. The Egyptian ruler died by asp bite in 30BC, while Cleopatra the Alchemist is thought to have lived much later, in 3rd century AD. Still, their shared name has entangled the pair, and the Queen has occasionally been given credit for the Alchemist's experiments. "She probably worked as a philosopher, author and alchemist," explained Robert Plimer, author of several books on alchemy and Hermetic philosophy. "The name could also be a pseudonym, either of an unknown author or even a group of alchemist authors." In Cleopatra the Alchemist's time, Alexandria was a thriving center for scientific inquiry, intellectual dueling and philosophical thought. She would have had access to the full weight of knowledge lodged in the bookshelves of the city's Great Library (the largest in the world -- allegedly no ship could dock there without giving up its books to be copied for the collection.) Women in Ancient Egypt also had a relatively unusual amount of autonomy -- they could own property, were considered legally equal to men in court and were able to practice elite disciplines like alchemy. In fact, it was a collective of female alchemists in Ancient Egypt who gave the world beer; they invented it, fermented it and set up a booming business by the Nile.

Cleopatra is thought to have studied under another giant figure in alchemy, known as Maria (or Mary) the Jewess -- often considered the first woman alchemist of the Western world. There's a fantastical 1964 painting of Maria by the great surrealist Leonora Carrington, depicting her as a chimera of woman and lion, breasts exposed and wild hair flailing as she conducts mystical gold-summoning spells. It's a beguiling image, but both Maria and Cleopatra's work seems more aligned with industrial chemistry than witchcraft: "Over the years Maria has been attributed with creating [chemical instrument and heat bath] the bain-marie, which is named after her," Plimer said in an email. "She is also attributed with inventing hermetic sealing, and discovering hydrochloric acid." The latter is a chemical compound used everywhere in modern life, from suspension bridges and batteries, to food and fireworks. The sprawl of time, the tendency of alchemists to cloak their language in secrecy, and the early Christian zealots who destroyed many alchemical books -- not to mention sexism and a tendency to treat women as witches -- have resulted in huge gaps in our knowledge about these early trailblazers. But Islamic scholars copied or preserved some important documents, and that's how we know

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about Cleopatra: a single scroll of vellum, today under the care of the University of Leiden in the Netherlands, holds the key to her work.

Known as “Cleopatra’s Chrysopoeia” (‘Cleopatra’s gold-making’) it could be viewed as one of the earliest science books written by a woman. Part philosophical work and part chemistry experiment (the boundaries between philosophy, religion and science were significantly more blurred in Cleopatra’s age), it is covered in enigmatic diagrams, cryptic symbols and doodles. There’s a serpent devouring its tail (a symbol for eternity), stars and crescent shapes referring to the transformation of lead into silver, and a drawing of an alembic, a system of distillation that is still used today. Over the centuries there have been many more intriguing female alchemists who concocted tonics and tinkered with brews to further our knowledge of science: from the wealthy 15th-century French maverick Marie Meurdrac, an entirely self-taught scientist and proto-feminist who published chemistry treatise and declared “minds have no sex,” to the cross-dressing Christina of Sweden in the 17th century, who set up her own laboratory and collected a valuable repository of alchemical research.

None to date have given us hard evidence that it’s possible to transform base metals into gold. But perhaps that was never exactly the goal -- the quest for the mythical philosopher’s stone has been considered by some scholars of alchemy as less of a Rumpelstiltskin-style get-rich-quick scheme than an elegant metaphor for self-improvement: the desire to turn the base material of our minds into intellects that shine a little brighter.

edition.cnn.com, 29 April 2020

<https://www.edition.cnn.com>

## Children reimagine cities with paper and glue amid coronavirus lockdowns

2020-04-29

From “fantastical skyscrapers” to sprawling green spaces, children are creating their own cities while under lockdown, using designs from a renowned British architecture studio.

Foster + Partners’ project, which includes drawing trees and building skyscrapers from paper cut outs, aims to get children to think about how they interact with the world around them, including the importance of soothing parks and gardens.

**The studio plans to create 10 tasks to inspire children and keep them busy during coronavirus lockdowns.**

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“We know the value of educating and enthusing children with architecture and their built environment from an early age,” said Katy Harris of Foster + Partners, which has built many famous landmarks like London’s City Hall, nicknamed The Onion.

“How we design the buildings that we live in and work in is important ... they can affect the way we live and our wellbeing,” Harris, a senior partner, told the Thomson Reuters Foundation.

The studio plans to create 10 tasks to inspire children and keep them busy during coronavirus lockdowns.

It has already received submissions from children across the world, including Australia, Canada, Cambodia and Spain.

Urban experts say cities will need major design innovations in the aftermath of the coronavirus pandemic to become more self-reliant, improve food security, reduce population densities and create more room for pedestrians.

The coronavirus crisis would not be the first time that an epidemic has led to changes in city planning, research shows.

Cholera outbreaks in the 1830s led to better sanitation in London, while a tuberculosis epidemic in New York in the early 20th century paved the way for improved public transit systems and housing regulations.

Future architects will likely design cities differently, Harris said, from enabling social distancing in outside spaces to reconsidering offices as working from home becomes the norm.

“Our ... teams are all looking at this now - how do we design for social distancing?” Harris said. “Our architects are already working on modifications to our own workplace to address social distancing and living with the virus.”

[news.trust.org](https://www.news.trust.org), 29 April 2020

<https://www.news.trust.org>

### **Are we witnessing the death of the car?**

2020-04-30

As global lockdowns keep most people at home, congestion-riddled, pollution-choked streets around the world have transformed into empty,

**This lack of cars has contributed to a sudden drop in emissions of carbon dioxide, pollutants like nitrogen dioxide and fine particulate matter.**

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eerily silent spaces. The most conspicuous absentee is the car, as personal vehicles remain parked in driveways and side streets.

This lack of cars has contributed to a sudden drop in emissions of carbon dioxide, pollutants like nitrogen dioxide and fine particulate matter. Its effect on oil prices has been not so much a drop as an implosion. Some cities have temporarily turned emptier streets into walking and cycling-only zones to enable socially distanced exercise. Meanwhile, Milan – the epicentre of Italy’s coronavirus outbreak – announced it would transform 35km (21.7 miles) of its streets for cycling post-lockdown. Could this pandemic, a global emergency, actually catalyse an ongoing movement towards cleaner air – and might Milan’s scheme form a blueprint for cities that have repeatedly tried to tackle the domination of the car? The pandemic’s impact on the environment has been staggering. Carbon emissions from the burning of fossil fuels are heading for a record 5.5-5.7% annual drop. From mid-January to mid-February, China’s carbon emissions fell by around 25%. In Delhi, a city with often the worst air quality in the world, pollution caused by PM2.5s reduced by roughly 75% as traffic congestion dropped by 59%. A 70% reduction in toxic nitrogen oxides was reported in Paris, while satellite imagery showed nitrogen dioxide levels in Milan fell by about 40%. In the UK, road travel has decreased by as much as 73% and in London, toxic emissions at major roads and junctions fell by almost 50%.

Although car use has decreased, so has public transport use. Services have been reduced, the need for travel has declined, and a public fear of using it has grown, now that proximity to strangers has become synonymous with infection risk. Some Chinese cities, including Wuhan – where the coronavirus outbreak began – shut down public transport entirely to reduce risk of contagion. The urban mobility app Moovit reported that public transport ridership has dropped on average by 78% worldwide, with Milan and Rome, for example, seeing a decrease of 89%. Where car, bus and train journeys have been dwindling, bicycles have been picking up the slack. As a form of isolated transport that doubles as exercise – that is much easier given the wealth of empty streets – cycling has become more appealing in a number of cities. In March, use of bike-share systems increased by roughly 150% in Beijing and 67% in New York, where cycling on main thoroughfares increased by 52%. Meanwhile, cycling traffic increased by 151% on trails in Philadelphia and in April Dundee saw cycling traffic increase by 94%. To accommodate streets now busier with bikes, as well as facilitate social distancing, some places have installed temporary cycle lanes or closed streets to cars. Pop-up bike lanes have

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appeared in cities including Berlin, Budapest, Mexico City, New York, Dublin and Bogotá. Governments from New Zealand to Scotland have made funding available for temporary cycle lanes and walkways amid the pandemic. In Brussels, the entire city core will become a priority zone for cyclists and pedestrians from early May for the foreseeable future. Meanwhile, temporary street closures to cars have taken place in Brighton, Bogotá, Cologne, Vancouver and Sydney as well as multiple US cities including Boston, Denver and Oakland. In England, restrictions have been lifted to enable and encourage councils to more quickly close streets to cars.

But these, of course, are temporary measures. What will happen as lockdowns are lifted?

There are widespread concerns that as travel resumes, people will avoid public transport amid continuing fears of the virus and instead turn to private cars, clogging roads and causing pollution, perhaps even more so than before. Chinese cities, including Beijing and Shanghai, are already seeing this happen. (***Read more about how air pollution exacerbates Covid-19.***) It is with this in mind that Milan announced its plan to make changes in the wake of the pandemic that support alternatives to driving. "In order to prevent an excessive use of private cars, with the consequent increase in air pollution, the city of Milan will encourage the use of bicycles," its announcement states. As travel restrictions are lifted, the government will begin construction on the cycle lanes – all of which take space away from cars – alongside implementing reduced speed limits and widened pavements.

This is far from a ban on cars, but it does suggest a shift towards more sustainable forms of transport in the long term, catalysed by the pandemic. So could other cities follow suit?

Janette Sadik-Khan, a former transportation commissioner for New York City and principal with Bloomberg Associates, is working with Milan and other cities on their "transport recovery" programmes. "The pandemic challenges us, but it also offers a once-in-a-lifetime chance to change course and repair the damage from a century of car-focused streets," she says. "Cities that seize this moment to reallocate space on their streets to make it easier for people to walk, bike and take public transport will prosper after this pandemic and not simply recover from it."

In the Colombian city of Bogotá, mayor Claudia López closed 117km (72.7 miles) of streets to cars in order to make cycling and walking easier during the coronavirus lockdown. Though these streets are typically closed every

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Sunday – in the long-running, pro-cycling initiative Ciclovía – Lopez has extended the closure throughout weekdays too, as well as added 80km (49.7 miles) of cycle lanes to the city's existing network of 550km (341.7 miles). "Covid-19 safety now piles up with all the other advantages to cycling in Bogotá, and we are exploring other measures, in addition to new cycle lanes, that should increase not only infrastructure but also access to bicycles and other safe and clean transportation alternatives," explains Bogotá's environment secretary Carolina Urrutia Vásquez. "Hopefully these will remain primary transportation choices, as well as 'last mile' alternatives, past the current crisis." In Paris, where mayor Anne Hidalgo's Plan Vélo had already promised to make every street cycle-friendly by 2024 and remove 72% of Paris's on-street car parking spaces, a post-lockdown plan was announced that includes creating temporary cycle lanes following metro line routes, for those hesitant to return to public transport. The planned construction of permanent cycle highways has also been accelerated in response to the crisis.

At the national level, Pierre Serne – president of cycling association Club des Villes et Territoires Cyclables – was asked by French minister Élisabeth Borne to coordinate a sustainable post-lockdown mobility plan. "We anticipate a lot of people will chose cycling instead of public transportation," says Serne. "It could potentially mean millions of new bikes in streets and therefore we have to be able to provide adequate facilities. If we failed, the only alternative might be millions more cars and that would be a nightmare in terms of pollution and congestion. I am willing (and rather confident) to see these temporary measures become permanent because, pandemic or not, cycling is one of the cleanest and healthiest ways to move, especially in urban areas."

In Budapest, new temporary cycle lanes are due to last until September – but maybe further. "We are constantly monitoring the use of the temporary bike lanes, and we are hoping that a good many of them could remain in place," says Samu Balogh, the mayor's chief of staff. "The pandemic has changed transport globally... We have the opportunity to see what would our cities look like when we are designing for people, not cars." Such thinking builds upon existing efforts from the city to eliminate road deaths, which includes decreasing car numbers and lowering speed limits.

"In the long term we are working towards implementing traffic-calming measures and new bike lanes so we can create a more inviting environment for cycling and walking," says Balogh. In the UK, London mayor Sadiq Khan has made clear that the capital's cleaner air should not

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be temporary and that the ongoing challenge is to “eradicate air pollution permanently”. Xavier Brice, chief executive of the walking and cycling charity Sustrans, believes the country’s recovery “can be a catalyst for positive, long-lasting change in the way we live and move around” and hopes that temporary cycling and walking measures – which Sustrans lobbied for – “inform future road space planning, after lockdown is lifted”. It seems this may take effect in Manchester. “When restrictions are lifted, rather than returning to business as usual, we need to take the opportunity to see how we can support more people to choose to walk or cycle, instead of travel by car,” says city councillor Angeliki Stogia, who leads Manchester’s environment, planning and transport strategy. There are also developments at the national level, as the government’s recently published [De-Carbonising Transport report](#) outlines a strategy for reducing car use in order to [tackle climate change](#), in line with the country’s commitment to achieve net zero greenhouse gas emissions by 2050. It has also [committed to ban the sale](#) of new petrol, diesel or hybrid cars in the UK from 2035 to help achieve this.

Which brings up an important point: it is petrol and diesel cars, rather than [electric vehicles \(EVs\)](#) that contribute to carbon emissions and toxic air in cities. Electric vehicles have steadily increased in popularity over the last decade: BloombergNEF reported in 2019 that [more than two million EVs were sold in 2018](#), up from just a few thousand in 2010. It predicts sales will rise to 56 million by 2040. But EVs are not problem-free: they are expensive, require sufficient and widespread charging facilities, and still contribute to congestion on city streets. In a low-carbon future, however, electric cars – especially those that are shared – could form one part of a multi-modal transport infrastructure.

So in these cities’ efforts to ensure healthier air, outright bans on cars don’t feature as a core approach. But, if their plans are successful, combustion-engine cars may well become a rarer sight. It’s hard to say what will happen next, especially as we don’t know when “next” will be. But the sudden drop in pollution and improvement of air quality around the world has been a wake-up call, not least in light of [studies showing that pollution makes Covid-19 more deadly and could even contribute to the spread of the virus](#). The coronavirus pandemic struck at a time of climate emergency, an emergency caused in part by the huge amount of greenhouse gas emissions released into the atmosphere – much of which comes from cars. This pandemic may have inadvertently triggered an environmental reprieve, but it has not stopped climate change.

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On 22 April, [Earth Day](#) catalysed calls for the current crisis to be a turning point in our relationship with nature. “We must act decisively to protect our planet from both the coronavirus and the existential threat of climate disruption,» says UN Secretary General António Guterres. «We need to turn the recovery into a real opportunity to do things right for the future.” Just like viruses, he noted, greenhouse gases do not respect national boundaries either.

Tackling air pollution and climate degradation is high on the list for the new [Global Mayors Covid-19 Recovery Task Force](#), coordinated by C40 Cities, which sees mayors worldwide collaborate to achieve a climate-friendly economic recovery from the pandemic. “The future will be very different, and I’m convinced it will be much more local – more cycle deliveries, more working from home and more school runs made by bike or walking,” says Shannon Lawrence, C40’s director of global initiatives. “All of which means fewer cars on the road, which in turn means improved air quality, better public health and a major contribution to tackling the climate crisis.”

Implementing restrictions on cars has different practical and political limitations around the world, however. In places like Milan, Bogotá and Paris, there have long been bottom-up and top-down efforts towards more sustainable mobility – from [car-free days](#) to successful bike-share systems. Change is perhaps easier in these places, although not simple.

“Space is of course political, and so supporting and ensuring sufficient space for non-motorised transport and the spectrum of users who have livelihoods dependent on space(s) is crucial,” says Rashed Fataar, chief executive of Cape Town-based NGO Our Future Cities, which works with cities across the African continent. “Transport options which are safe, clean, less crowded and more efficient should be the benchmark, but transport planning must begin to see itself as part of a system providing economic and social ‘access’ in our cities.”

Indeed, a decline in car use cannot be expected unless people have efficient, accessible and affordable alternative options. But as Fataar points out, mobility is linked to every aspect of life in cities, and a change in car use may only be possible if issues around housing, public services and work culture are addressed too. Such huge volumes of commuting, for instance, may not be necessary if working from home is made easier, services are more equally distributed geographically or people can afford to live within walking distance of their work.

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Policy and behaviour change may take a long time, but there exists a building momentum across the world that recognises car-free streets as a critical way of tackling the urgent climate crisis, as well as a strategy to improve health and wellbeing. This pandemic has resulted in countless forced changes to our lifestyles, economies and environments. Seeing what's possible can lead to change – the question is how to ensure the change resulting from this global emergency improves health for people and planet.

We are a long way off from the demise of the car, but as the world seeks to recover from the collective trauma of the Covid-19 pandemic, perhaps the willingness to tackle another deadly emergency – outdoor air pollution causes 4.2 million deaths per year – will get stronger.

“This Covid-19 crisis is allowing us a glimpse of what a changed world looks like with far fewer cars and much cleaner air,” says Claudia Adriaola-Steil, deputy director of the Urban Mobility Program at the World Resources Institute. “Dramatic change is indeed possible.”

*The emissions from travel it took to report this story were 0kg CO<sub>2</sub>: the writer interviewed sources remotely from the safety of lockdown. The digital emissions from this story are an estimated 1.2g to 3.6g CO<sub>2</sub> per page view. [Find out more about how we calculated this figure here.](#)*

bbc.com, 30 April 2020

<https://www.bbc.com>

### **Amsterdam is now using the ‘doughnut’ model of economics: What does that mean?**

2020-04-30

As Amsterdam plans for its post-coronavirus recovery, it's also rethinking what economic success looks like. In doing so, it's not looking at traditional financial metrics of how to determine when the city has recovered. Instead, the city will be the first in the world to officially adopt the “doughnut” model of economics.

The model, developed by U.K. economist Kate Raworth, is a simple way to illustrate a complex goal. The inner ring of the doughnut represents minimum standards of living, based on the UN's Sustainable Development Goals. This entails the basic essentials everyone needs to thrive, from food and clean water to gender equality and adequate housing. According to the model, no one should fall into the hole in the center of the doughnut,

**Instead, the city will be the first in the world to officially adopt the “doughnut” model of economics.**

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which would mean they don't have enough to afford basic needs. The outer ring of the doughnut represents the ecological limits of the planet, from biodiversity loss and air pollution to climate breakdown. Amsterdam wants to stay between the inner and outer rings.

"Within these two boundaries, between the social foundation that is on the inside and the ecological ceiling, there is this doughnut-shaped space where it is possible to meet the needs of all within the means of the living planet," says Ilektra Kouloumpi, a senior strategist at Circle Economy, a nonprofit that has been working with Raworth, along with the nonprofits Biomimicry 3.8 and C40 Cities, to help the Amsterdam government adopt the doughnut model to make policy decisions. "The overarching question is: How can our city be home to thriving people, in a thriving place, while respecting the well-being of all people and the health of the whole planet?"

The city already has ambitious environmental goals, including a plan to become carbon neutral, and to transition to a circular economy, meaning that all materials will be used in closed loops instead of ending up in landfills. But it also recognized that it needed an overarching strategy that included social goals. Circle Economy, which was already working with the city on its circular economy goals, saw the opportunity for the doughnut model to help the city create better strategies. The planning has been underway for more than a year; the city formally adopted the model last week.

"The big added value of putting this in the heart of the city's vision is that it creates a holistic vision where all the different agendas that the city drives and all the different targets that the city needs to fulfill sit together within one common vision," Kouloumpi says. "I like it because it's for the first time that we can see important topics like climate change and gender equality, or health education and land conversion—very different angles—coming together under one conversation."

In a series of workshops, the city and groups of stakeholders looked at Amsterdam's current status through the lens of the doughnut. Housing, for example, is one local social challenge, as nearly 20% of tenants can't afford to pay for other basic bills after paying for rent. It's simultaneously a climate challenge. Now, Kouloumpi says, as the city thinks about how to add housing, it's also thinking about how housing impacts issues such as air pollution and health. "We're really thinking about the interconnections," she says.

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The approach also looks at the impacts the city has beyond its own borders, from the air pollution that's created in China when Chinese factories make goods that are exported to the Netherlands, or the social impact of the cocoa grown in Africa—sometimes with child labor or slavery—that's imported in huge quantities through the Port of Amsterdam. "It stretches the boundaries of responsibility of the city," Kouloumpi says.

The analysis helped the city create a "city doughnut," a visualization of the city's challenges that is helping it decide what changes are needed and whether the plans it has in place are ambitious enough. The doughnut model is also helping it evaluate new policies that can solve its challenges. The coalition of groups working on the project, called the Thriving Cities Initiative, is also beginning to work with other cities; both Portland, Oregon, and Philadelphia have also created city portraits, though they haven't yet been published. "The idea is that we pilot this program and we work now with these three cities, and once we have created that complete journey, then more cities can take this path," says Kouloumpi.

[fastcompany.com](https://www.fastcompany.com), 30 April 2020

<https://www.fastcompany.com>

### Microplastics prevent hermit crabs from choosing the best shells

2020-04-30

Hermit crabs always have one eye on upgrading their homes, often swapping their shells for others that are a better fit. But researchers have now warned plastic pollution in the oceans is impairing the crustaceans' judgement about their optimal abode. This disruption could have wide-ranging consequences for marine ecosystems due to hermit crabs' role as "walking wildlife gardens" which host more than 100 other species.

Experiments conducted by biologists at Queen's University Belfast and Liverpool John Moores University found crabs exposed to microplastics were less likely to touch or enter more suitable shells when available.

Dr Gareth Arnott, lead researcher at the Northern Irish university's School of Biological Sciences, said: "Our research shows that exposure to microplastics can have important effects on animal behaviour.

**But researchers have now warned plastic pollution in the oceans is impairing the crustaceans' judgement about their optimal abode.**

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“More specifically, in this case it had a detrimental effect on shell selection behaviour in hermit crabs. As this behaviour is vital for hermit crab survival and reproduction, there could be important long-term consequences.”

Hermit crabs do not develop their own shells, instead taking those of snails to protect their soft abdomens. As the crabs grow over the years, they seek out a succession of larger shells to move into.

Australian scientists warned last year that plastic pollution was killing hermit crabs on a vast scale. More than 560,000 have died after being trapped inside waste littering the shores of the Cocos Islands in the Indian Ocean and Henderson island in the Pacific, according to a study published by biologists at the University of Tasmania.

Up to 10 per cent of the plastic produced worldwide ends up in the sea, according to Greenpeace research.

To investigate the impact of microplastics on the crustaceans' behaviour, Dr Arnott and his colleagues kept 35 female crabs in tanks containing seawater, seaweed and polyethylene beads for five days. A second group of 29 crabs were placed in tanks without plastic.

All the crabs were then transferred to into “suboptimal” shells and placed into observation tanks with a better-fitting shell. The crabs that had been exposed to plastic were less likely than the control group to investigate or enter their optimal shell, and those that did took longer on average to move into it.

In a study published in the journal Biology Letters, researchers said their findings suggested microplastics “impair cognition” in hermit crabs, “disrupting an essential survival behaviour”.

Dr Arnott said: “Our research shows for the first time how microplastics are disrupting and causing behavioural changes among the hermit crab population. “These crabs are an important part of the ecosystem, responsible for ‘cleaning up’ the sea through eating up decomposed sea-life and bacteria.

“By providing a hard, mobile surface, hermit crabs are also walking wildlife gardens. They host over 100 invertebrate species – far more than live snails or non-living substrates.”

Commercially fished species such as cod, ling, and wolf-fish also prey on hermit crabs, noted Dr Arnott.

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He added: "With these findings of effects on animal behaviour, the microplastic pollution crisis is therefore threatening biodiversity more than is currently recognised so it is vital that we act now to tackle this issue before it becomes too late."

The team said more research was needed to establish why microplastics changed crabs' behaviour, the impact of different plastics, and how other species were affected.

[independent.co.uk](https://www.independent.co.uk), 30 April 2020

<https://www.independent.co.uk>

### salt in the wounds: the uphill struggle against road pollution

2020-04-30

For years, there were signs that something was wrong with the water on Ben Sweeney's farm.

The cows weren't producing as much milk. Appliances and farm equipment broke. Ben and his wife weren't feeling well. Their son's hands would bleed, and their grandkids were getting rashes.

He began to panic when the cows started dying.

He tested the water and found it was full of salt.

His suspicions about whom to blame settled on a nearby road. Each winter, the New York Department of Transportation dumped ton after ton of salt on State Route 26, which runs past the Sweeneys' 300-acre farm near Boonville, just southwest of the Adirondack Park.

In early 2004, officials from New York State admitted they had poisoned his water with salt. But they refused to pay for the damage.

In the years since, Ben and his wife Barbara have suffered more health problems. He has high blood pressure; she had a stroke and needed a kidney removed. He dipped into his retirement to try to save the farm. His hopes of traveling the country in an RV are gone.

"They actually took our life away from us," **Ben said.**

An *Adirondack Explorer* investigation found that across upstate New York, road salt has seeped into drinking water supplies, poisoned wells, endangered public health and threatened people with financial ruin.

**He tested the water and found it was full of salt.**

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In an average year, according to the Clear Roads maintenance research consortium, New York spreads roughly 50,000 pounds per mile on every lane of state highway, making it one of the heaviest users in America. But state officials have largely escaped accountability for the resulting pollution.

### Side effects

State and local highway departments dump more than 2 billion pounds of salt on New York roads each winter, trying to keep them clear for traffic. But that safety measure comes at a price. About a fifth of the salt sprinkled on roads bounces off highways and onto the land. More of it runs off later.

The chemical properties of salt that help it fight off snow and ice also harm metal, meaning it can ruin cars, appliances and plumbing. And, in a high enough dose, salt is dangerous to human health—it raises blood pressure and leads to heart attacks, strokes and kidney disease.

In and around the Adirondacks, world-class environmental regulations have done little to protect people or property from this damage. Heavy salting in the park began with the 1980 Lake Placid Winter Olympics, and as early as 1990 a state commission on the park's future recommended studying its effects and developing a roads plan to minimize them. Subsequent studies suggested widespread contamination, and the state has designated some test zones to reduce salt applications, but the debate over how to protect the park at large continues.

The salt that highway crews still use to keep roads passable for winter tourists may now be one of the largest threats to the park and its people since acid rain.

From 1998 to 2003, the state spread more than 300,000 pounds of salt on the stretch of road in front of Ben Sweeney's farm. By the time he realized it had seeped into his water, there were 490 milligrams of sodium in every liter of water he was drinking.

Barbara would drink a gallon a day from the faucet. By just drinking that water, she was unknowingly loading herself up with more salt than some federal guidelines say a person should get from a whole day's meals.

If they had been getting water from a public drinking water system, the Sweeneys could have been warned. Community water systems are supposed to tell people if there's more than 20 milligrams of sodium per liter.

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### Unchecked pollution

But the Sweeneys are among roughly a million New Yorkers who get water from private wells that go largely unchecked and unregulated.

Instead, the Sweeneys only stumbled on the pollution while trying to figure out why their cows were sick. In the late 1990s, just as the state started applying more salt to the roads, milk production on the farm began to fall.

Around 2003, about 20 cows, most of them pregnant, died.

After changing the cows' diet didn't work, the Sweeneys tested their water.

When they realized it was contaminated, they decided to seek help from the state. But they soon learned the hard way that the state doesn't have to help.

Two officials from the Department of Transportation first visited the farm in December 2003, a few weeks after Ben had borrowed about \$8,000 from the bank to dig a new well farther from the road.

By coincidence, one of the DOT officials, Dennis Pawlicki, a regional engineer for the state, had grown up on the farm before his folks sold it to the Sweeneys in 1964.

Pawlicki was straight-up. Yes, it looked like the state's road salt was to blame.

In February 2004, after the state's lab results came back, Pawlicki wrote a letter to spell it all out. "Dear Ben," it began.

"Based on these sample results, it appears that your existing wells have been contaminated with road salt," Pawlicki wrote. "The problem is most likely due to the fact that your farm lies near the bottom of a long slope, and the drainage from a fairly long stretch of highway finds its way onto your property."

Because the damage was from "routine road salting," though, the state didn't owe the Sweeneys anything.

### The people vs. NY

In and out of court, the state has been able to use this defense to escape responsibility after road salt ends up in drinking water.

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Interviews with people across upstate New York suggest that DOT won't help homeowners unless they spend years of their life fighting the state.

As soon as Dave and Polly Grebe closed the deal on their new home along Lake Clear, in a rural hamlet northwest of Saranac Lake, Dave went inside to pour himself a glass of water.

"Something's wrong," he said.

It was so salty even the dog wouldn't drink it.

The Grebes spent the next five years trying to get the state to take responsibility, even though the source of the problem seemed obvious. State Route 30 ran right by their house. Runoff from the road came down a slope into their yard toward the lake. Across the road and slightly uphill from it, at other property the Grebes owned, the water was fine.

They weren't alone, either. All along Lake Clear, property owners between the road and the lake have found salt in their water.

The Grebes finally got help, but only because Dave Grebe is a persistent man. He called the state. A lot.

"I'd call them like clockwork every morning," he said.

Even though the state started paying to send the Grebes bottled water, it continued to deny fault. In a [2009 letter](#) written by a DOT attorney, Yvie Dondes, the state said the fault must be with the Grebes: Their old well was too shallow. A new well, which they had spent at least \$10,000 on and that was already contaminated, either wasn't built correctly or was in the wrong part of the yard.

One time, after Dondes promised to get back to him soon on some issue, Dave decided to stop calling. He waited for her to call back for 52 weeks—a whole year.

"She never called," Polly said.

### **A settlement**

Then they called the state to complain about their ill treatment. They found an attorney for the state who had what Dave called common sense.

In settlement documents, DOT finally admitted that road salt had contaminated the Grebes' well and agreed to pay about \$20,000 to reimburse them for their expenses. Another new well that ran under Route

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30 and got water from their property across the road was finally providing them with safe water.

That helps the Grebes, but it doesn't help others around the lake, who complain of similar problems and have lab results to back up their allegations. Kirk Peterson is one of them.

"We've been buying gallon jugs of water and dealing with it for 20 years or so," he said.

In the settlement papers, DOT blamed the mess at the Grebes' place on "unique geography."

Dave Grebe is skeptical.

"They're going to have to explain why the unique geography is happening everywhere," he said.

Jim Bowman, who lives near Stratford by Pleasant Lake, downhill from State Route 29A, only hopes he'll eventually get a deal like the Grebes got.

His water also shows signs of road salt pollution, including huge amounts of chloride, one of the other corrosive components of salt.

He thinks that explains why his water seemed to be eating his house alive—ruining plumbing, a washing machine, faucets, water heaters, the ice maker and a handful of water filters each week. One time, in the middle of winter, with several feet of snow on the ground, he paid some friends \$20 an hour to help him dig up a water line that had suddenly burst.

The state wasn't helping, so he heard about the Grebes and got Polly on the phone.

"I said to her, 'I would love some help. Anything—\$100. They wouldn't even change a filter for me, how did you get a well?'" Bowman said. "She said, you got to bitch, I mean, you really got to call everybody and call them every day."

Corey Laxson of the Adirondack Watershed Institute collects a sample from Mirror Lake, a Lake Placid water body that is affected by road salt runoff.  
Photo by Brendan Wiltse

'Pounding salt'

At the time, Bowman couldn't do it—he was working 12 hours a day for Fage, the yogurt maker in Johnstown. Between 3:30 in the morning, when

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he got up, and 7:30 at night, when he got home, when was he going to fight the state of New York's 9-5 bureaucrats?

Clean water is especially important to Bowman, who needed a kidney transplant and is now walking around with one of his son Jason's kidneys.

Because sodium damages the kidneys, salty water could kill him.

Both he and Jason wonder if the salt in the water was part of the problems he has already faced.

"I was pounding salt like there was no tomorrow," he said of the drinking water at his house.

The doctors wouldn't say one thing caused another—only that the salt certainly didn't help his blood pressure. The kidney problems cost him his job and now, after the transplant, he's on a regimen of medication to keep his immune system from attacking the new kidney.

He went ahead and put \$10,000 of his own money into a new well. He's waiting until the new well settles to test the water quality. If there's salt there, it will have been in vain.

He said he's begging the state to use less salt on the road by his house.

"I didn't do anything wrong," he said. "You're polluting the hell out of my property."

While the Adirondacks are known for their thousands of pristine lakes and ponds, groundwater is just as important.

The Adirondack Watershed Institute at Paul Smith's College has tested nearly 500 wells in the Adirondacks—including Bowman's and Peterson's. More than half of the wells they tested downhill from state roads had elevated salt levels.

Dan Kelting, the institute's executive director, said it's time for people to pay attention to the threat that road salt poses to groundwater across the Adirondacks.

"Our groundwater may be the more valuable water," he said. "It's certainly the water more people drink."

One agency responsible for protecting it, the Department of Environmental Conservation, has seemed outgunned by DOT's priorities for decades.

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Art Stemp, a former DEC staffer, said if the state highway department was a private company contaminating groundwater supplies wherever it did business, all the regulatory forces available to state environmental officials would be brought to bear against it.

Instead, with road salt, one arm of the state is being asked to regulate another. And it's not really working.

In 1994, one of Stemp's colleagues, Fredric Dunlap, wrote a letter to a Vermontville resident whose wells had become contaminated with chloride.

There were a few possible sources: salt leaking out of the Town of Franklin's nearby storage shed; salt put on the roads by the state; or some combination of both.

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In the years since, the state has spent a lot of money upgrading salt sheds. But, as Dunlap predicted in his letter, good luck trying to get the state to stop using so much salt on the roads.

"The policy to maintain winter roads in a snow and ice free condition is a management decision by the DOT in the interest of public safety," Dunlap wrote to the Vermontville resident, who asked to remain anonymous because they didn't want to hurt their own property value by letting people know about the salt intrusion. "It is this Department's understanding that this policy will remain in effect and does take precedence over other concerns."

Little has changed.

When asked what the state was doing to police road salt, a DEC spokeswoman wrote that the department is "committed to protecting public health, the environment, and public safety through the proper management of road salt storage sites in New York through its oversight of permit conditions, grants to enclose municipal road salt piles, monitoring of surface waterbodies, and coordination with local and state agencies."

There's scant mention of the sort of runoff that polluted the Sweeney or Grebe properties.

DOT spokesman Joseph Morrissey said in a statement that the department "follows strict snow and ice guidelines in order to make sure our highways are safe for drivers" and is working to protect the environment by "also

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undertaking pilot programs to study new equipment, techniques and possible modification to application rates.”

On stretches of road near Lake George and Lake Placid, the department has been experimenting with ways to use less salt.

There’s little anyone can do about the salt that’s already in the ground, though. The salt is likely to remain there and in the water for decades, if not centuries, to come.

“Once it is in the water supply, it’s there and it’s going to last a lot longer than most people will,” said Stemp, the former DEC staffer.

New Yorkers who want to hold state government accountable must do battle in the court of claims.

A search of claims shows that few people have taken the state to court over road salt issues. In fact, when the term does show up in court records, it’s sometimes coming from people who complain that the state isn’t using enough road salt to keep roads clear.

The state is in a damned-if-you-do, damned-if-you-don’t situation. Apply too much salt and someone will sue. Apply too little and someone—perhaps someone with a wrecked car to prove damages—may sue as well.

A water pollution case is the harder one to prove. It takes lab results, maybe a geologist or two, and harms that may materialize only over a long time, perhaps long after statutes of limitations have passed.

In court, DOT has largely prevailed over homeowners who have accused it of contaminating their wells with salt runoff.

‘Not our mission’

Part of that is judges’ deference to DOT’s own guidelines. When DOT applies as much salt as it says it needs to apply to keep the roads safe, judges haven’t found it guilty of wrongdoing, even when that much salt is polluting nearby waterways.

DOT has also benefitted from strict timelines in the law that require homeowners to sue it almost as soon as they discover a problem.

In one of the state’s few salt pollution cases to reach trial, an attorney asked one of the New York State Thruway Authority’s environmental engineers, David Curtis, if the authority’s mission is to ensure that residents near its roads have clean, potable, non-salty water.

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“That’s not our mission,” Curtis said.

The mission, he said, is to make sure the highways are safe and reliable.

In that case, several dozen residents of Greenville, an Orange County town along Interstate 84 near the New Jersey line, first noticed salt in their water in the 1990s. They blamed the Thruway Authority and DOT, which took turns maintaining nearby roads.

Without admitting any guilt, the Thruway Authority started sending drinking water to some residents, because their tap water was unusable. One family has received six 5-gallon bottles of water every three weeks since 1994, courtesy of the state of New York.

“Please be assured that we are working toward a long term solution and will urge other local and state agencies to join us in the search,” the Thruway Authority’s chief engineer, Robert Donnaruma, wrote in spring 1994.

That solution didn’t come, so the families sued the state.

In a 2017 decision that is now being appealed, White Plains-based Judge Stephen Mignano said that ruling in favor of the families with polluted water could subject DOT and the Thruway Authority to “liability on a statewide basis,” leaving them responsible for costly cleanups and new water systems.

“Clearly,” the judge said, “a permanent solution, if attainable, lies with the executive and legislative branches.”

### **Quest for justice**

But so far neither branch has helped. A quarter-century after the state promised a fix, the Greenville families are still in court.

The Sweeneys spent just shy of 15 years looking for justice. Part of the problem is one attorney they hired had his law license suspended, so they had to get another one. That delayed things a bit.

During the long-awaited trial in 2018, the state never admitted that its salt is what killed the cows. Instead it focused on what the Sweeneys, proud farmers with a history of winning awards for their milk, might have done to bring harm to their own cows.

Ben Sweeney was taken aback by the state’s attack, which he felt focused more on his farming than on their runoff.

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“They were more after my qualifications, if I was trustworthy or not,” Ben said.

The Sweeneys estimate the lost milk production and dead cows easily cost them tens of thousands of dollars—perhaps even a quarter-million dollars.

The link between their salty water and the cows’ health was never proven. Garrett Oetzel, a professor at the University of Wisconsin who studies animal nutrition, said in a recent email that he’s “highly skeptical” that sodium could have been high enough to cause health or production problems in dairy cattle.

The Sweeneys’ animal nutritionist, Tim Smithling, said he’s sure the salt was responsible for the problems on the Sweeney farm. At one point, he noticed that cows were eating snow rather than drinking water, which was so salty that when he went to drop some ice in his coffee during one visit he noticed salt had built up in the bottom of the Sweeneys’ ice tray.

“I thought in this case it was pretty clear,” Smithling said.

If nothing else, the state, which has provided bottled water to other homeowners with salty water, seemed totally incapable of dealing with allegations that it had ruined a whole farm’s water supply.

“You can’t go buy bottled water for a herd of dairy cattle,” Smithling said.

There’s a similar case in Phelps, where more than 80 cows died at a farm along a stretch of Thruway north of the Finger Lakes. In that case, the Thruway Authority concedes its road salt is in the farm’s water, but argues there are other reasons the water might be as salty as it is and other reasons the cows might die. The case is still pending.

When the Sweeneys finally got a verdict, in 2018, Saratoga Springs-based Judge Francis T. Collins didn’t rule one way or the other on what killed the cows or any of their allegations.

Instead, the judge said the Sweeneys had missed a filing deadline somewhere along the way. As a result, Collins threw the whole case out and the state was off the hook. Ben’s son Brian, who owns the farm now, figures the state won because it had to win. Otherwise, who knows how much New York State would owe not just the Sweeneys but countless others across the state?

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"It's a case they can't afford to lose," Brian said.

[adirondackexplorer.org](http://adirondackexplorer.org), 30 April 2020

<https://www.adirondackexplorer.org>

### Coronavirus: What does evidence say about schools reopening?

2020-04-29

As the coronavirus spread around the globe earlier this year, many countries closed their schools and nurseries to most children. Lockdown has rewritten almost every aspect of our lives, but for parents, one of the most striking changes is to be spending unprecedented amounts of time cheek by jowl with their offspring.

With older children, there may be battles over laptops, working space and wifi access, as well as the inevitable bugs of hastily devised online lessons. With younger ones, parents may be required to do two jobs at once, becoming home teachers as well as carrying out their usual work. As coronavirus deaths appear to be peaking in many places, governments are wrestling with the question of when schools can reopen.

In the UK, there are calls for schools to reopen at the beginning of June after the May half-term break. "We all want to come back, that's the job of the school, but it's got to be safe for everyone," says a London headteacher, who asked not to be named.

On the face of it, closing schools may seem like an essential safety measure to protect children, but not all countries are making the same choices. While Australia has brought in many similar lockdown measures to the UK, in some areas, most children are continuing to go to school. Taiwan has had no mass shutdown, just closures of individual classes or, in some cases, schools if local [covid-19](#) cases pass a threshold.

Unfortunately, it is hard to draw conclusions from the different infection rates as there are so many other factors that vary between countries. Taiwan, for instance, flattened its coronavirus curve very effectively, but through a host of measures that would meet resistance in the UK, such as tracking people through their phones.

Some of our assumptions about the coronavirus have turned out to be wrong. As the outbreak progressed, signs emerged that it has an unusual feature for a respiratory virus: of all age groups, it affects children least. It is unclear why, but a [study](#) of nearly 45,000 people in China with

**As coronavirus deaths appear to be peaking in many places, governments are wrestling with the question of when schools can reopen.**

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confirmed covid-19 found that children under 10 made up less than one per cent of cases.

The key question is whether children are getting infected at the same rate as everyone else, and just have milder symptoms.

Although a study from researchers in China published this week suggests this is indeed the case, most research finds the opposite: that children are not only getting less sick, but are also catching the virus and passing it on less too.

An instructive case is that of Vò, a small town in Italy where a resident died from covid-19 in February. In response, the whole town was locked down and nearly nine in ten residents were tested for the virus. In people over twenty, the infection rate was nearly 3 per cent; in those aged eleven to twenty, it was 1.2 per cent, and in those younger than eleven, there were no infections at all.

This is borne out by a further study looking at 31 household clusters of covid-19 in China, Singapore, South Korea, Japan and Iran between December 2019 and March 2020. In just three homes, it was someone under 18 who had brought the disease into the family, a rate of about one in ten. By comparison, children triggered about half of all family clusters of the H5N1 bird flu virus. "It looks like they are transmitting [coronavirus] less," says Alasdair Munro at the National Institute for Health Research Clinical Research Facility in Southampton, UK, who wasn't involved in the study.

Especially pertinent is a study from New South Wales in Australia, where many schools stayed open until mid-April. A detailed follow-up was carried out of all cases of covid-19 that occurred in schools in the region from March to mid-April, nine of which were in pupils and nine in teachers. Although 735 students and 128 staff were judged to have been close contacts of these 18 individuals, there were only two transmissions.

However, attendance at schools in New South Wales was plummeting in April as the state government told parents to keep children at home if they could. This may have helped keep the transmission rate low.

Clearly, the risk of catching coronavirus at a school isn't zero. But it seems to be much lower than predicted by many of the initial modelling studies that were based on typical patterns of flu transmission.

There are also risks from closing schools, although these are much harder to quantify. Some children with special needs may be especially affected

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by the loss of their educational resources and the structure of the school day. As well as pupils' education suffering, there are probably harms to some children's mental health and declines in their physical activity, says Chris Bonell at the London School of Hygiene & Tropical Medicine in the UK. "The likelihood is it will affect less well-off children worse."

As the pandemic has progressed, most politicians have been keen to stress that they are "following the science". But, as with many other areas, any decisions on schools aren't just scientific, they are also political. Policymakers need to be clear about that with the public.

newscientist.com, 29 April 2020

<https://www.newscientist.com>

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[Designing 3D-MoS<sub>2</sub> Sponge as excellent cocatalysts in advanced oxidation processes for pollutant control](#)

[Critical evaluation of human health risks due to hydraulic fracturing in natural gas and petroleum production](#)

[Marriage as a social tie in the relation of depressive symptoms attributable to air pollution exposure among the elderly](#)

### CHEMICAL EFFECTS

[Distinctive cellular response to aluminium based adjuvants](#)

[Computational material flow analysis for thousands of chemicals of emerging concern in European waters](#)

[Pyrroloquinoline Quinine and LY294002 changed cell cycle and apoptosis by regulating PI3K-AKT-GSK3 \$\beta\$  pathway in SH-SY5Y cells](#)

[Priorities for improving chemicals management in the WHO European region-stakeholders' views](#)

[Innovative bio-based organic UV-A and blue light filters from Meldrum's Acid](#)

### PHARMACEUTICAL/TOXICOLOGY

[Spot urine samples to estimate 24-hour urinary calcium excretion in school-age children](#)

[Drug treatment for patients with bipolar disorders in psychiatric practices in Germany in 2009 and 2018](#)

[A biomonitoring study assessing the exposure of young German adults to butylated hydroxytoluene \(BHT\)](#)

[The cyclopeptide  \$\alpha\$ -amatoxin induced hepatic injury via the mitochondrial apoptotic pathway associated with oxidative stress](#)

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Fluorene exposure among PAH-exposed workers is associated with epigenetic markers related to lung cancer

Risk assessment framework for nitrate contamination in groundwater for regional management

Assessment of occupational exposure to stainless steel welding fumes – A human biomonitoring study