

Welcome to this week's presentation and conversation
hosted by the
Canadian Association for the Club of Rome,
a Club dedicated to intelligent debate and action on global issues.

Earth Detox: How and why we must clean up our planet.

Our speaker today is Julian Cribb, AM, a prolific author & science communicator, member of many science organizations, & winner of many awards. A newspaper editor by trade, he was science editor for The Australian newspaper, director of awareness for CSIRO, & president of AUS professional bodies for agricultural journalism & science. For two decades, his main focus has been the emergency faced by humanity. He is a co-founder of the Council for the Human Future. Our health is balanced on a knife edge—growing less & less secure as our numbers & demands increase. The climate in which agriculture arose is now extinct, half the topsoil is gone, & water is running critically short. New crises like the current heatwaves & Ukraine war will only exacerbate the built-in instability caused by toxic chemicals and waste. Earth & all life on it are saturated with anthropogenic chemicals & wastes, in an event unlike anything in the previous 4 billion years. Each moment of our lives, from conception to death, we are exposed to thousands of substances, some lethal, many toxic & most of them unknown in their effects on our health or on the natural world. In this talk, Julian explores new opportunities & public communication strategies to reduce the toxic risks arising out of overuse & misuse of unsafe chemicals globally.

The presentation will be followed by a conversation, questions, and observations from the participants.

CACOR acknowledges that we all benefit from sharing the traditional territories of local Indigenous peoples (First Nations, Métis, and Inuit in Canada) and their descendants.



Website: canadiancor.com
Twitter: [@cacor1968](https://twitter.com/cacor1968)
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2023 April 11 Zoom #142

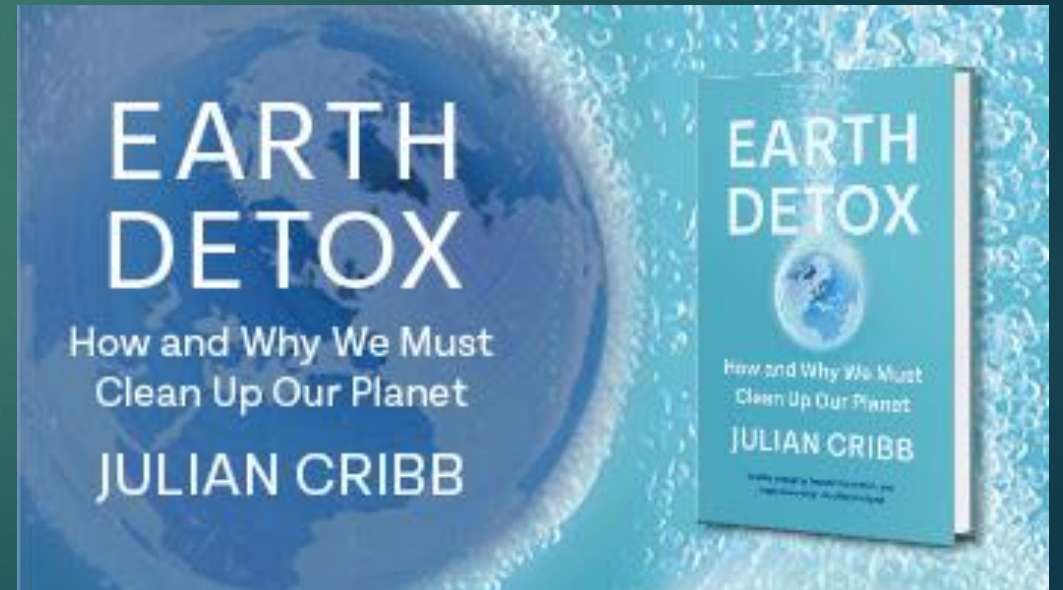
Cleansing a Polluted Planet

How and why we must clean up our Planet

JULIAN CRIBB AM FRSA FTSE

AUTHOR OF 'EARTH DETOX'

CACOR 2023



Earth now hit by 350,000+ man-made chemicals



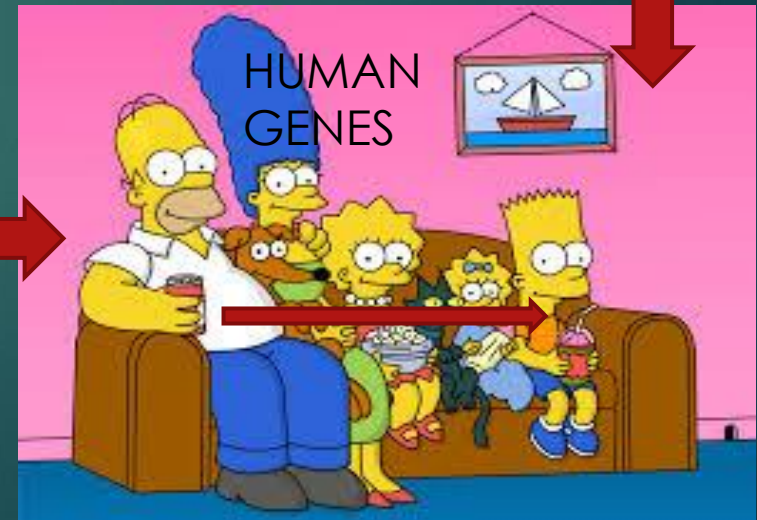
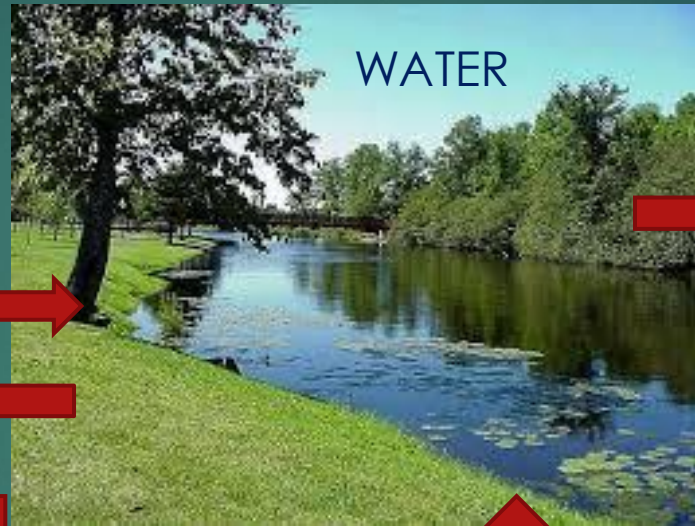
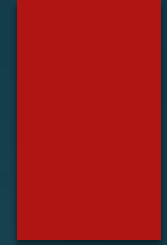
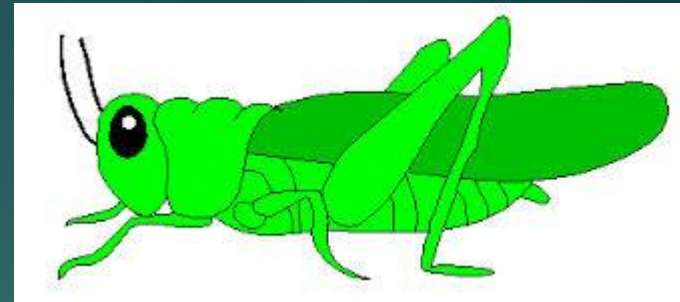
<250 Gigatonnes of human chemical emissions

- ▶ 2.5 billion tonnes of industrial chemicals and pesticides
- ▶ 161 mt of N and P
- ▶ 400 mt of hazardous wastes
- ▶ 13 Gt of coal, oil and gas
- ▶ 40 Gt of carbon
- ▶ 72 Gt materials and metals
- ▶ >300 Gt mining wastes
- ▶ >75 Gt of lost topsoil
- ▶ TOTAL 220-440 billion tonnes of emissions.

Our total chemical emissions are 4 to 5 times larger than our climate emissions



Toxics on the move



Global chemical circulation

Mt Everest



Arctic



Stratosphere



Deep oceans



Antarctica



Remotest islands



760+ aquatic dead zones



Are you a contaminated site?

- ▶ Outdoor air
- ▶ Indoor air (furnishings etc)
- ▶ Vehicles, inside and out
- ▶ Food additives, food packaging, plastic bottles
- ▶ Water, 'soft' drinks
- ▶ Pesticides, dyes, treatments
- ▶ Household cleaners, solvents
- ▶ Cosmetics and 'personal care'
- ▶ <http://www.ewg.org/skindeep/>
- ▶ Medical & recreational drugs

SHAMPOO
AVERAGE NUMBER OF CHEMICALS: 15
MOST WORRYING: Sodium Lauryl Sulphate; Tetrasodium and Propylene Glycol.
POSSIBLE SIDE-EFFECTS: Irritation; possible eye damage.

HAIRSPRAY
AVERAGE NUMBER OF CHEMICALS: 11
MOST WORRYING: Octinoxate, Isophthalates.
POSSIBLE SIDE-EFFECTS: Allergies; irritation to eyes, nose and throat; hormone disruption, linked to changes in cell structure.

EYE SHADOW
CHEMICALS: 26
MOST WORRYING: Polyethylene terephthalate.
POSSIBLE SIDE-EFFECTS: Linked to cancer; infertility; hormonal disruptions and damage to the body's organs.

BLUSHER
CHEMICALS: 16
MOST WORRYING: Ethylparabens, Methylparaben, Propylparaben.
POSSIBLE SIDE-EFFECTS: Rashes; irritation; hormonal disruptions.

LIPSTICK
CHEMICALS: 33
MOST WORRYING: Polymethyl methacrylate.
POSSIBLE SIDE-EFFECTS: Allergies; links to cancer.

FOUNDATION
CHEMICALS: 24
MOST WORRYING: Polymethyl methacrylate.
POSSIBLE SIDE-EFFECTS: Allergies; disrupts immune system; links to cancer.

NAIL VARNISH
CHEMICALS: 31
MOST WORRYING: Phthalates.
POSSIBLE SIDE-EFFECTS: Linked to fertility issues and problems in developing babies.

DEODORANT
CHEMICALS: 15
MOST WORRYING: Isopropyl Myristate, 'Parfum'.
POSSIBLE SIDE-EFFECTS: Irritation of skin, eyes and lungs; headaches; dizziness; respiratory problems.

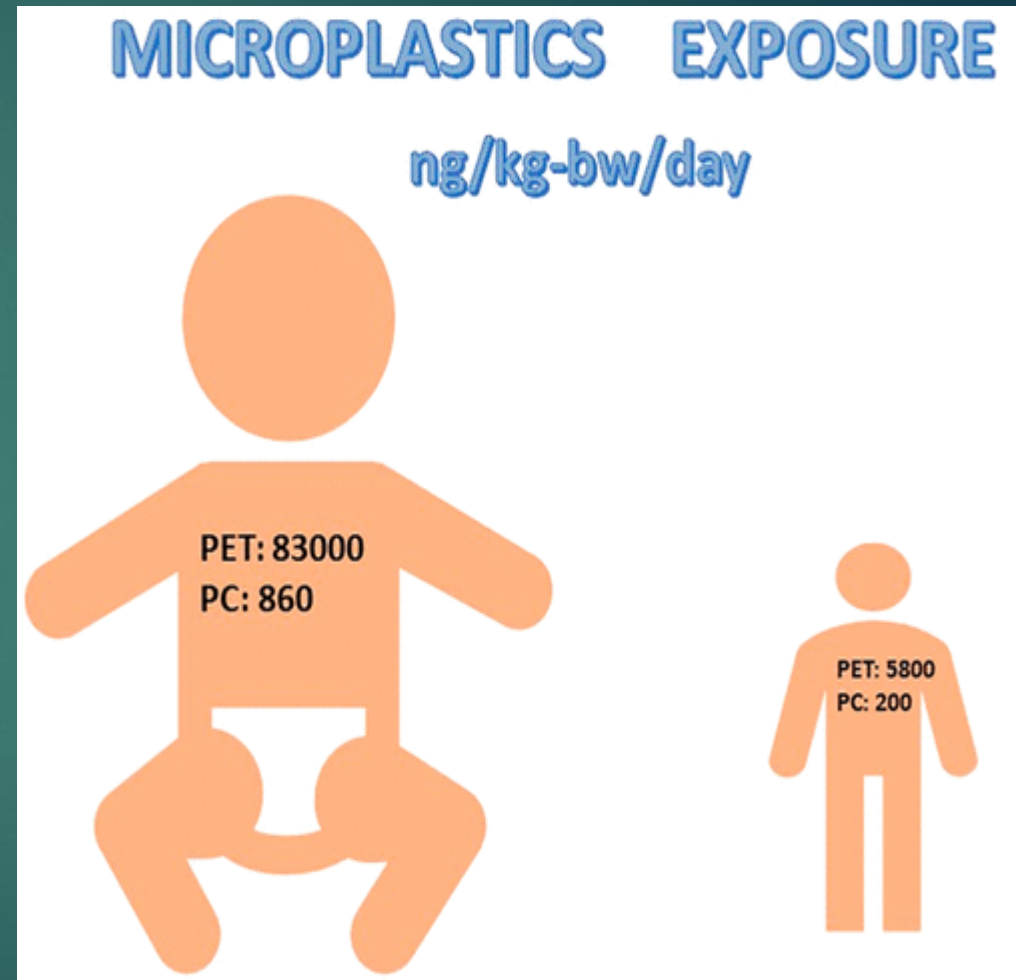
PERFUME
CHEMICALS: 250
MOST WORRYING: Benzaldehyde.
POSSIBLE SIDE-EFFECTS: Irritation to mouth, throat and eyes; nausea; linked to kidney damage.

BODY LOTION
CHEMICALS: 32
MOST WORRYING: Methylparaben, Propylparaben, Polyethylene Glycol, which is also found in oven cleaners.
POSSIBLE SIDE-EFFECTS: Rashes; irritation; hormonal disruption.

FAKE TAN
CHEMICALS: 22
MOST WORRYING: Ethylparaben, Methylparaben, Propylparaben.
POSSIBLE SIDE-EFFECTS: Rashes; irritation; hormonal disruption.

Born toxic

- ▶ 414 industrial toxins found in 186 people from newborns to grandparents
- ▶ 212 chemicals, inc dioxins, flame retardants and carcinogens in new-born babies
- ▶ Newborns excrete thousand sof tiny pieces of plastic in their first poo.



Our first mouthful contains pesticide



- ▶ Mother's milk contaminated with pesticides and industrial chemicals in 68 countries inc N & S America, Australia, Europe, SE Asia, India and China (WHO).
- ▶ Rocket fuel found in infant formula in US
- ▶ 4000-6000 chemicals used in food production, processing and packaging

Annual toll

- ▶ >13.7 million lives lost yearly, 600 million disabled, due to chemical exposure (WHO)
- ▶ Plus 2-5m cancer deaths (WHO)
- ▶ Human IQ now declining by -3 pts/decade
- ▶ **Worst case of mass homicide in human history**

Bhopal child victim >



Science now links many diseases to toxic exposure

- ▶ **Existing diseases on the increase:** cancers, heart disease, mental disorders, IQ loss, Alzheimers, Parkinsons, ALS, diabetes, lung diseases.
- ▶ **Emerging diseases:** autism, ADHD, MCS, sex disorders, mesothelioma, chemical hypersensitivity, endocrine disorders eg. obesity, epigenetic disorders, autoimmune diseases, immune dysfunction, infertility, reproductive & developmental disorders.

Agent Orange child victim:



A generation **at risk**: Harvard

- ▶ “A silent pandemic of neurotoxicity affecting millions of children worldwide.”
- ▶ Autism, ADHD, lower IQ, dyslexia, other cognitive impairments.
- ▶ “Untested chemicals should not be presumed safe. **All chemicals should be tested.**”
- ▶ Recent studies indicate human IQ is now declining at ~3% a decade.

The screenshot displays the article page on the Lancet Neurology website. The browser's address bar shows the URL: [http://www.thelancet.com/journals/laneur/article/PIIS1474-4422\(13\)70278-3/abstract](http://www.thelancet.com/journals/laneur/article/PIIS1474-4422(13)70278-3/abstract). The page header includes the journal title "THE LANCET Neurology" and navigation links for "Subscribe", "Register", and "Login". A search bar is present with the text "Search for" and a "GO" button. The article title "Neurobehavioural effects of developmental toxicity" is prominently displayed, along with the authors "Dr Philippe Grandjean MD" and "Philip J Landrigan MD". The "Summary" section begins with the text: "Neurodevelopmental disabilities, including autism, attention-deficit hyperactivity disorder, dyslexia, and other cognitive impairments, affect millions of children worldwide, and some diagnoses seem to be increasing in frequency. Industrial chemicals that injure the developing brain are among the known causes for this rise in prevalence. In 2006, we did a systematic review and identified five industrial chemicals as developmental neurotoxins: lead, methylmercury, polychlorinated biphenyls, arsenic, and toluene. Since 2006, epidemiological studies have documented six additional developmental neurotoxins—manganese, ...". The right sidebar contains "Article Options" such as "Full Text", "PDF (609 KB)", and "Cited by in Scopus (13)". The Windows taskbar at the bottom shows the date and time as 6:15 PM on 15/09/2014.

Grandjean & Landrigan, March 2014

Are humans getting dumber?

- ▶ IQ scores declined by an average of 3.1 point/decade 1975-2012 in 8 studies.
- ▶ This was observed in 7 countries: Britain, France, Denmark, Norway, Netherlands, Finland, Estonia.
- ▶ If the loss applies globally, humans have lost 13.1 points of IQ since 1975 – ie a person born today scores IQ 87, instead of 100.
- ▶ IQ is closely correlated with economic growth and development
- ▶ IQ is essential to maintaining democracy.



Why regulation fails...

- ▶ Only 19 out of 350,000 manmade chemicals banned
- ▶ <2000 new chemicals released every year
- ▶ Most new chemicals never tested for safety (UNEP)
- ▶ Global Chemical Circulation is uncontrollable
- ▶ Replacing old chemicals with new brings new problems (eg DDT > neonics)
- ▶ Chemical industry moving to poorly-regulated countries
- ▶ Regulation cannot control chemical mixtures.



Sixty years on...

- ▶ Since Rachel Carson published 'Silent Spring' in 1962, warning of the risks from agricultural chemicals, **farm pesticide use** has increased ten-fold to **5 million tonnes a year**.



Many disasters: few lessons



Minamata, Seveso,
Bhopal, Hinckley,
Love Canal, Tianjin...

.. confrontation and
legal battles but few
solutions



So who is really responsible?



'In a sense,
we are all
getting
away with
murder'



People power



facebook



GREENPEACE



Clean Up the Earth technologies

- ▶ Green chemistry >
- ▶ Lifecycle assessment
- ▶ Zero waste
- ▶ Material flow analysis
- ▶ Industrial ecology
- ▶ Integrated pest management
- ▶ Risk assessment
- ▶ Remediation >

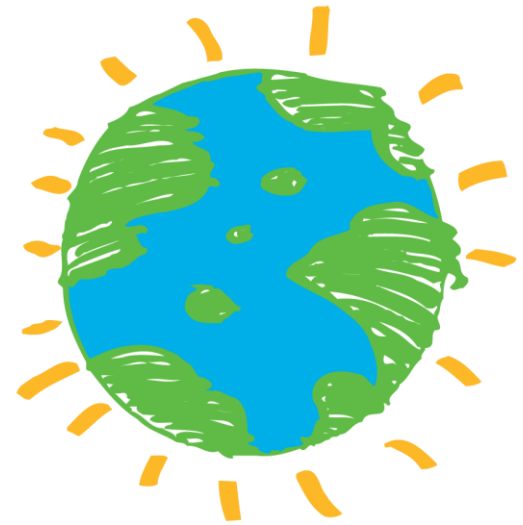


Plan for a **Clean Earth**

- ▶ 'Clean Up the Earth' alliance
- ▶ Human Right 'not to be poisoned'
- ▶ Global chemical 'IPCC'
- ▶ **Eliminate all fossil fuels**
- ▶ Eliminate toxins from food chain
- ▶ **Train scientists to 'first, do no harm'**
- ▶ Educate kids to buy safe products
- ▶ **Reward industry by buying green**
- ▶ Zero waste, green chem, product stewardship
- ▶ **Test all chemicals for safety.**



Clean Up



the World

A global chemical pollution body

You can't solve a problem unless you understand it. We need a new global body to:

- ▶ Quantify all human chemical emissions
- ▶ Monitor global contamination
- ▶ Maintain a global register
- ▶ Monitor safety testing
- ▶ Assess human health impacts
- ▶ Assess environmental health
- ▶ Report to humanity.



A New Human Right

- ▶ We need a **Right Not to Be Poisoned**
- ▶ A new Human Right won't fix the problem, but it will:
 - ▶ Generate worldwide awareness
 - ▶ Set new standards
 - ▶ Encourage their adoption by nations.



“If we do not have a ‘Right Not to be Poisoned’, there will probably never again be a day in history when we are not”

– Julian Cribb, Earth Detox, 2021

Earth Detox: how and why we must clean up our Planet



Cambridge University Press, 2021