Choosing our future

FOR A HEALTHIER LIFE, CONSUME CHEMICALS IN MODERATION!

"Choosing our future" campaign

Toxic chemicals in plastic bottles, sunscreens, non-stick pans and garden pest sprays may be harming our ability to stay healthy, produce children and shortening our lives, as well as affecting the health of future generations. The need for citizens to find out what they can do to protect their health, and which policy changes need to happen, is as pressing now as ever. This is why the Health and Environment Alliance (HEAL) and Générations Futures (GF) have developed a new and updated version of this comic book.

LEARN MORE ABOUT THE "CHOOSING OUR FUTURE" CAMPAIGN AT
www.env-health.org/choosingourfuture

In 2008, HEAL and Générations Futures (GF) launched the first edition of this comic book. The idea was to create a bit of fun around the somewhat disturbing issue of how our environment – and especially chemicals and pesticides – affect our health. "Choosing our Future" became an enormous success. In only a couple of months the comic book was downloaded more than 10,000 times, and many people shared the cartoons on their website, their blog and various other social media websites. The success was a clear sign for HEAL and GF that there is a continuous demand for information on the hazardous effects of chemicals and pesticides.

Comic strips in this publication were created by David Ratte, author of "Toxic Planet" series, Paquet publishers.

Toxic planet

paquet

In addition to this comic book, HEAL also developed a new webpage where you can find background information, other publications and different language versions of the comic book.
www.env-health.org/choosingourfuture

The publication is part of a joint campaign between Health and Environment Alliance (HEAL) and Générations Futures (GF).

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Choosing your future starts here!

Génon K. Jensen

Francois Veillerette

Chemical exposure hurts our health

The Health and Environment Alliance (HEAL) and Générations Futures (GF) are worried that the synthetic chemicals to which we are exposed in our everyday environments are harming our health. Current regulatory mechanisms are simply failing to protect us – and as a consequence suspect chemical residues are constantly circulating in our bodies because our system is continually exposed to them.

More and more scientific evidence is linking chemicals to growing rates of certain chronic diseases, such as breast cancer, diabetes and obesity, and to declining fertility in young men, sometimes even when exposure is at very low doses. The Health and Environment Alliance (HEAL) has used this information to successfully advocate for stronger regulation at the European level, where much of the environmental legislation is now made. The facts about chemicals and health are summarized in publications listed in the Resources (pages 25-28), which also describe how we can help protect ourselves.

Working in France, Générations Futures has made huge strides. In early 2012, the French Senate announced a commission of enquiry to investigate the relationship between pesticides and health. This important step may have been motivated by a courageous and energetic network of farmers suffering from cancers, Parkinson's disease and other chronic ailments associated with their exposure to pesticides. The "Phyto-victimes" are not only supporting and helping each other, they have also captured the sympathy and support of many in France putting pressure on politicians.

What should happen now?

HEAL and GF believe that the next big step in the chemicals and pesticides clean up is to effectively regulate the so-called endocrine (or hormone) disrupting chemicals, sometimes known as "gender benders" but which are also implicated in cancers and other chronic diseases. You can help in this effort by reading "Choosing our Future" and making yourself more aware of the facts. You could also join HEAL and work with GF thus becoming part of action on environment and health in Europe. Our aim is to see policy change that ultimately produces a fall in the number of breast, testicular and prostate cancers, fewer cases of Parkinson's disease, and fewer couples finding it difficult to conceive.

This book gives all of us the chance to make it happen. "Isn't that choosing a better future?"

Génon K. Jensen
Executive Director,
Health and Environment
Alliance (HEAL)

Francois Veillerette
Spokesperson,
Générations Futures
(GF)

About this comic strip

We hope you will enjoy these four comic stories by the successful French "bande dessinée" artist, David Ratte. The likable characters and witty narratives make the links between exposure to chemicals in everyday life, the consequences for our future health, and the possibilities open to us to choose a better future.*

Once you have read the comic strips, you can learn even more by turning to the back where we explain the facts "Behind the dialogue". Additionally, there is a glossary to look up different terms.

We have also included a resources section so you can discover even more information on various aspects and issues regarding links between chemical and pesticide exposure and the effects on our health and the environment. These publications are written to be easily accessible and therefore suitable to a wide audience.

The information provided by these comic strips and texts is not exhaustive although we have made every attempt to ensure its accuracy.

The "Choosing our Future" campaign information is accessible on ***www.env-health.org/choosingourfuture, www.generations-futures.fr*** *and* ***www.chemicalshealthmonitor.org***

* David Ratte is especially well known as author of the Toxic Planet series:
funny tales from a world so polluted that everyone is forced to wear gas masks!

French "bande dessinée" artist, David Ratte together with HEAL executive director Genon K. Jensen and Diana G. Smith, HEAL's communications adviser at the launch of the first edition of the comic book.

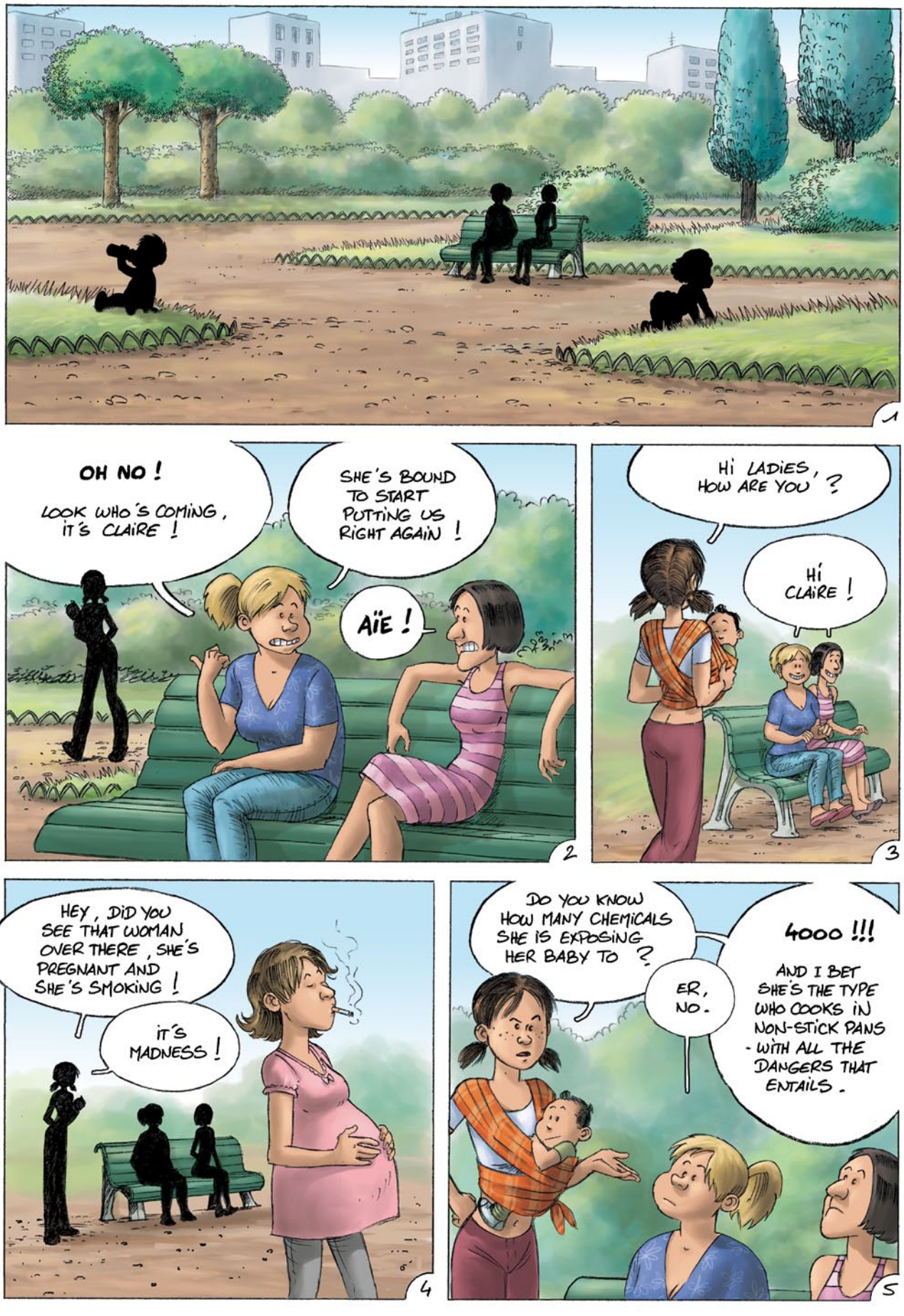
GREEN PASTURES?

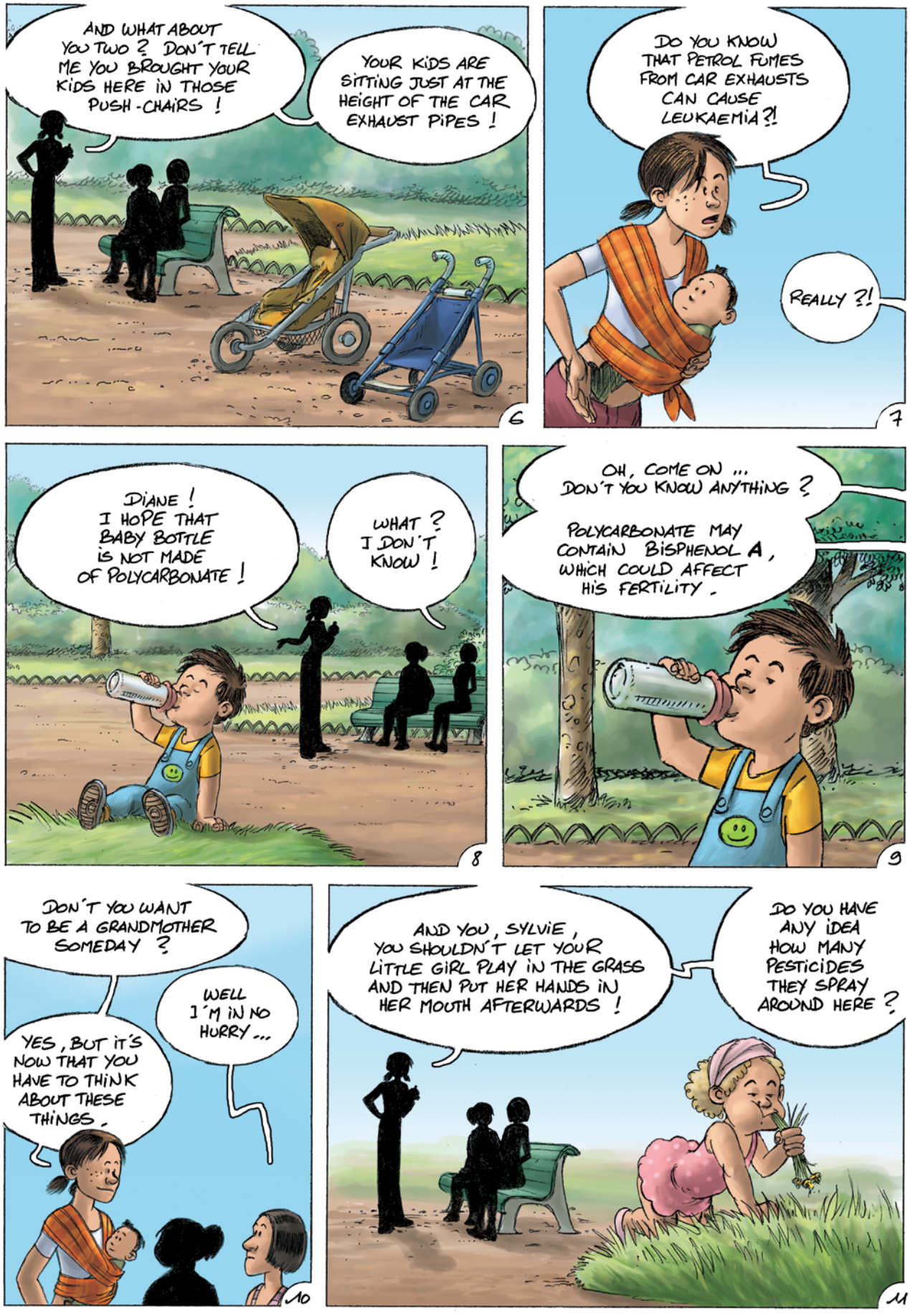
How are chemicals harming our health

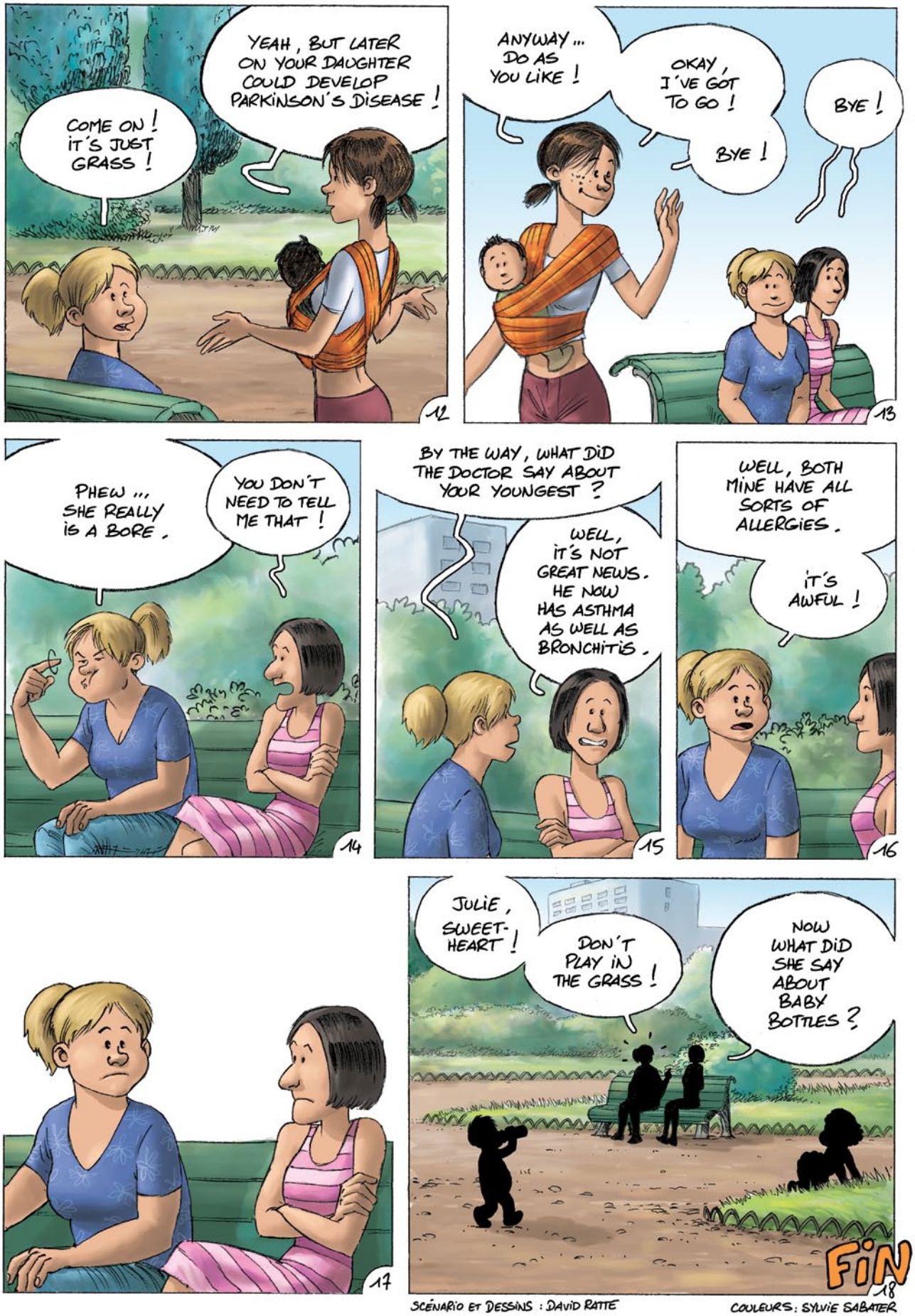
No matter how old we are, where we live, or what we do, none of us can escape exposure to man-made chemicals in our everyday lives that threaten our health.

We are exposed through food and water, through cosmetics that we rub into our skin and through the fumes from cleaning products and polluted city air.

The unborn child and children are most at risk because they have fewer defences and longer periods of life ahead of them in which cancer and other health problems may emerge.


1
OH NO !
LOOK WHO'S COMING, IT'S CLAIRE !
SHE'S BOUND TO START PUTTING US RIGHT AGAIN !
AÏE !
2
HI LADIES, HOW ARE YOU ?
HI CLAIRE !
3
HEY, DID YOU SEE THAT WOMAN OVER THERE, SHE'S PREGNANT AND SHE'S SMOKING !
IT'S MADNESS !
4
DO YOU KNOW HOW MANY CHEMICALS SHE IS EXPOSING HER BABY TO ?
ER, NO.
4000 !!!
AND I BET SHE'S THE TYPE WHO COOKS IN NON-STICK PANS - WITH ALL THE DANGERS THAT ENTAILS.
5


AND WHAT ABOUT YOU TWO ? DON'T TELL ME YOU BROUGHT YOUR KIDS HERE IN THOSE PUSH-CHAIRS !
YOUR KIDS ARE SITTING JUST AT THE HEIGHT OF THE CAR EXHAUST PIPES !
6
DO YOU KNOW THAT PETROL FUMES FROM CAR EXHAUSTS CAN CAUSE LEUKAEMIA ?!
REALLY ?!
7
DIANE ! I HOPE THAT BABY BOTTLE IS NOT MADE OF POLYCARBONATE !
WHAT ? I DON'T KNOW !
8
OH, COME ON ... DON'T YOU KNOW ANYTHING ?
POLYCARBONATE MAY CONTAIN BISPHENOL A, WHICH COULD AFFECT HIS FERTILITY.
9
DON'T YOU WANT TO BE A GRANDMOTHER SOMEDAY ?
WELL I'M IN NO HURRY ...
YES, BUT IT'S NOW THAT YOU HAVE TO THINK ABOUT THESE THINGS.
10
AND YOU, SYLVIE, YOU SHOULDN'T LET YOUR LITTLE GIRL PLAY IN THE GRASS AND THEN PUT HER HANDS IN HER MOUTH AFTERWARDS !
DO YOU HAVE ANY IDEA HOW MANY PESTICIDES THEY SPRAY AROUND HERE ?
11



SCÉNARIO ET DESSINS : DAVID RATTE

COULEURS : SYLVIE SABATIER

SUPERMAN AND THE MARTIANS

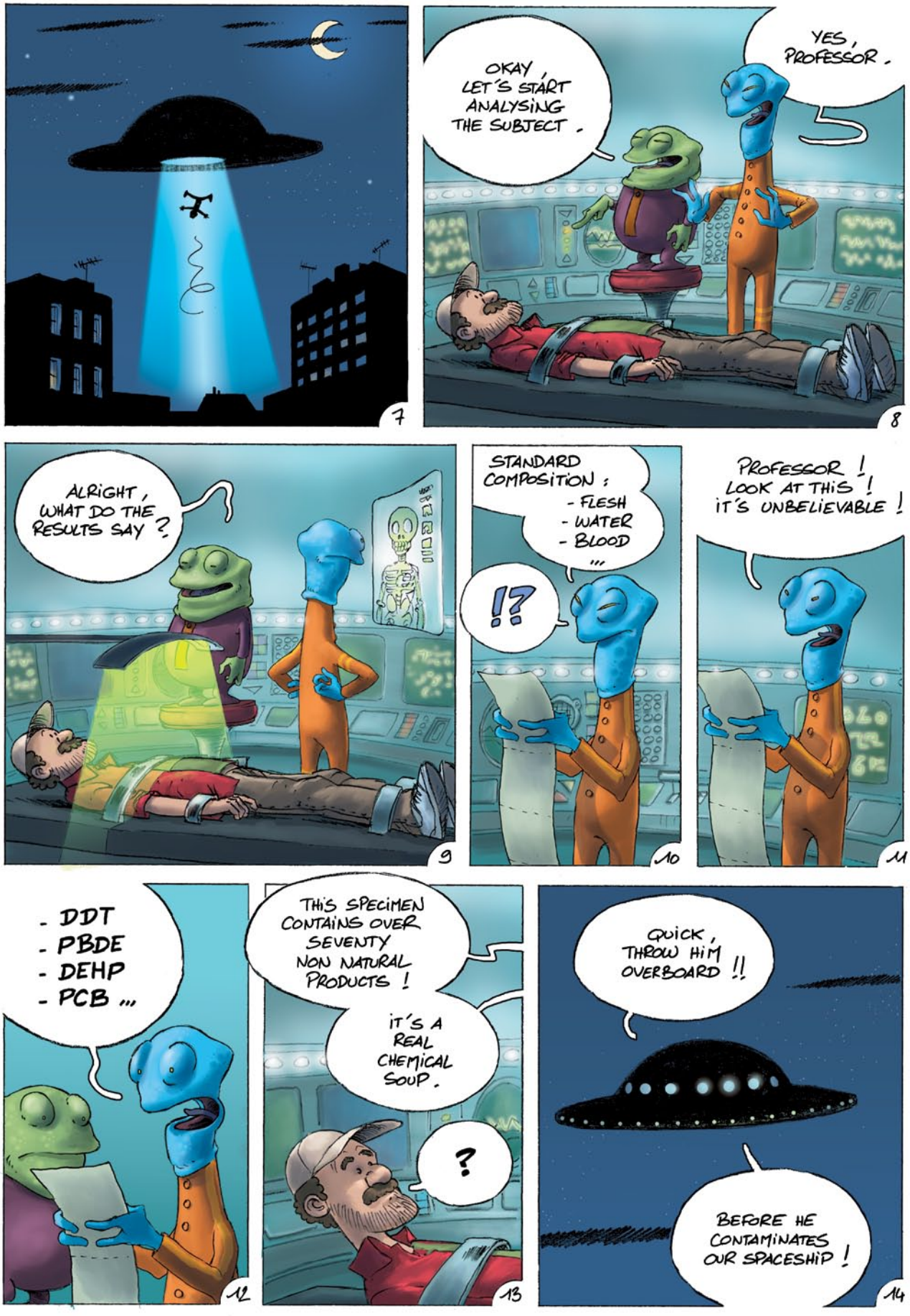
Life on earth means exposure to chemicals and living in a chemical soup

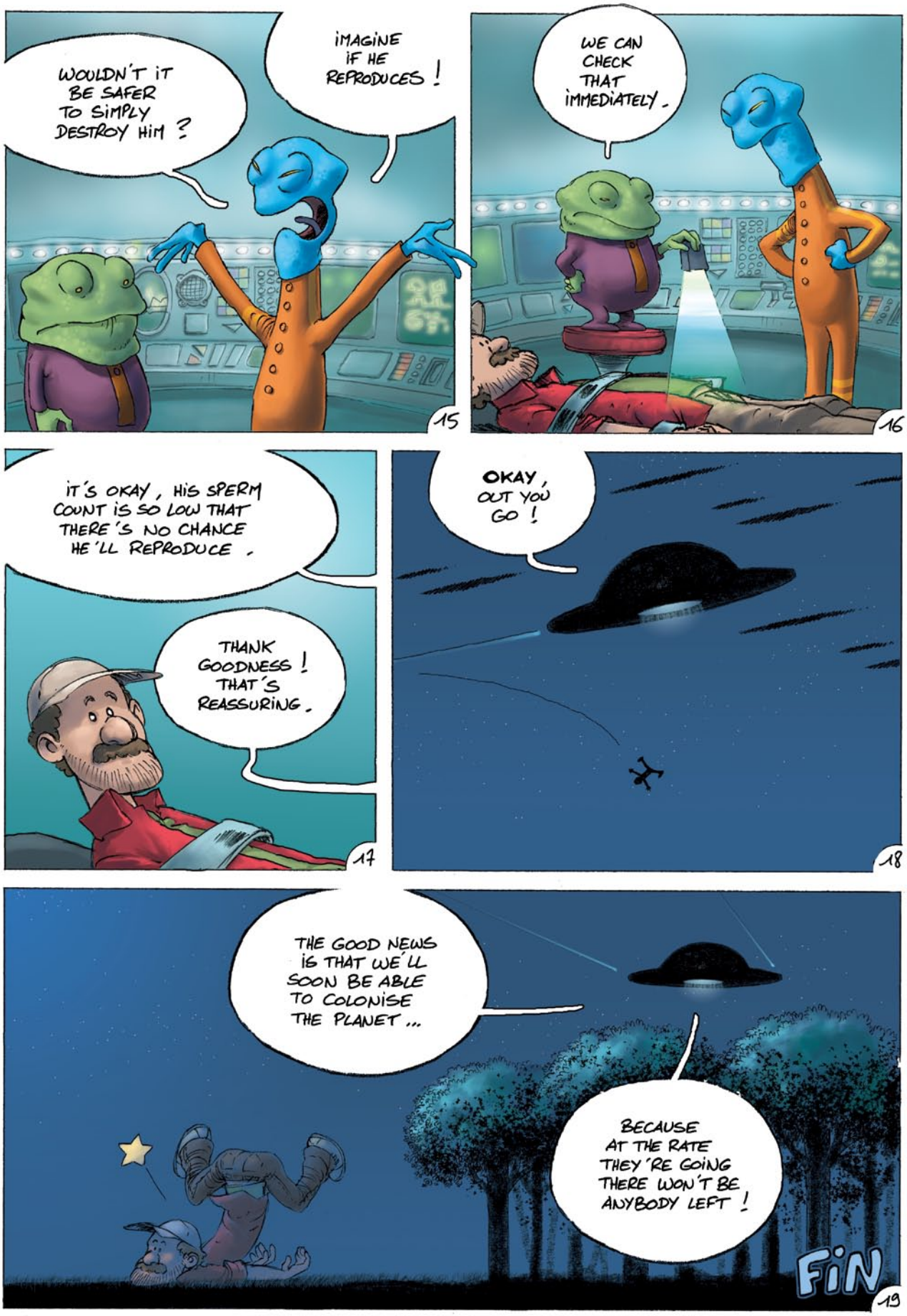
Several man-made chemicals are building up in our body that haven't been properly tested for health effects and shouldn't be there.

No one knows precisely what the long-term effects of having these chemicals in our blood will be for us, for our children and for future generations.

Traces of chemicals that were banned many years ago are still found in our blood.


1
2
CHIPS
3
4
!
5
?
6


7
OKAY, LET'S START ANALYSING THE SUBJECT.
YES, PROFESSOR.
8
ALRIGHT, WHAT DO THE RESULTS SAY?
9
STANDARD COMPOSITION :
- FLESH
- WATER
- BLOOD
...
!?
10
PROFESSOR! LOOK AT THIS! IT'S UNBELIEVABLE!
11
- DDT
- PBDE
- DEHP
- PCB ...
12
THIS SPECIMEN CONTAINS OVER SEVENTY NON NATURAL PRODUCTS!
IT'S A REAL CHEMICAL SOUP.
?
13
QUICK, THROW HIM OVERBOARD!!
BEFORE HE CONTAMINATES OUR SPACESHIP!
14



SCÉNARIO ET DESSINS : DAVID RATTE

COULEURS : SYLVIE SABATER

UNFORGETTABLE CINDERELLA

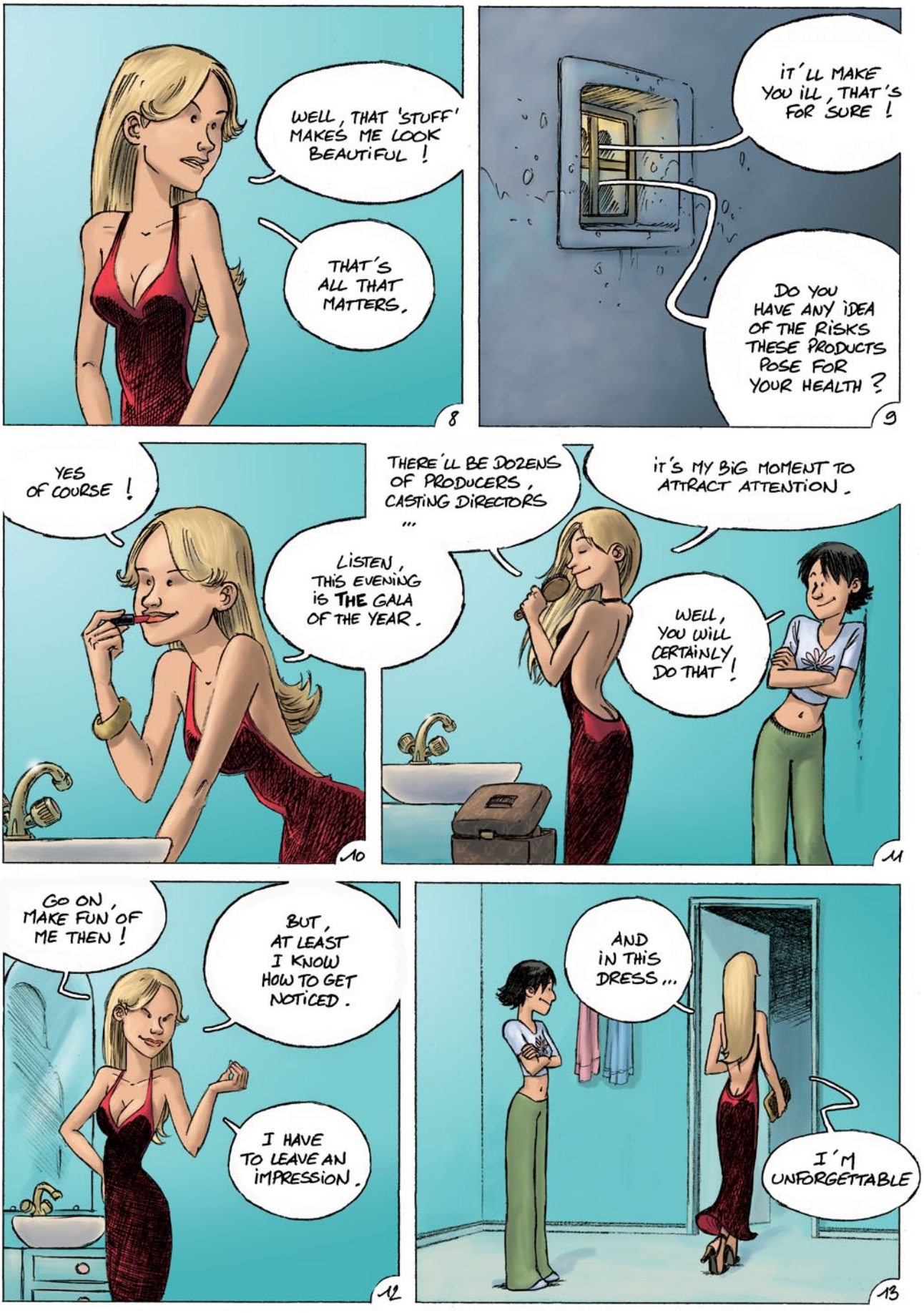
Beware of certain cocktails!

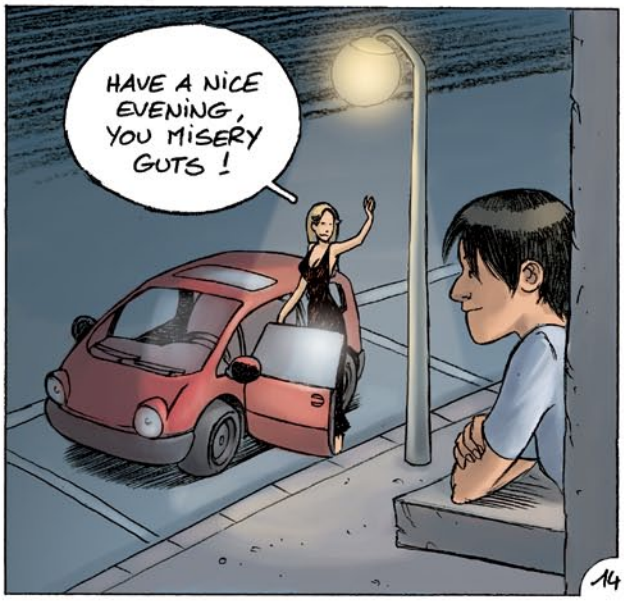
We are exposed to a daily "cocktail" of different man-made chemicals, which may be more potent than just one chemical on its own.

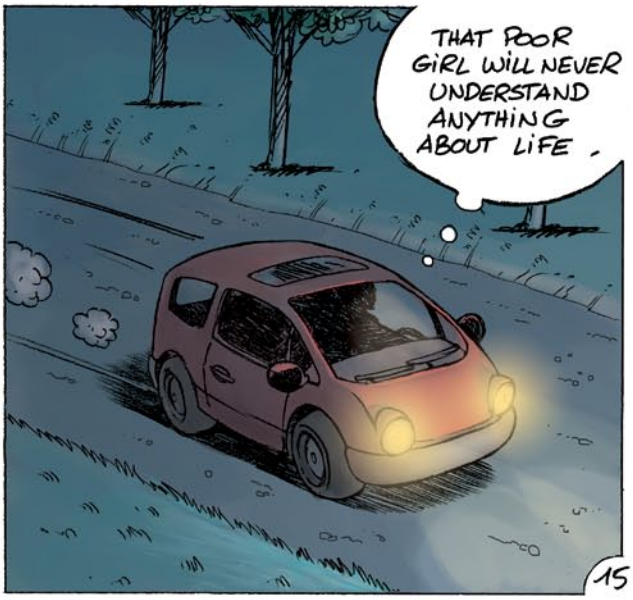
Despite this daily multiple exposure, we have insufficient scientific information about the safety and impact of these chemicals on our health. But absence of proof of harm doesn´t mean that they are safe to use!

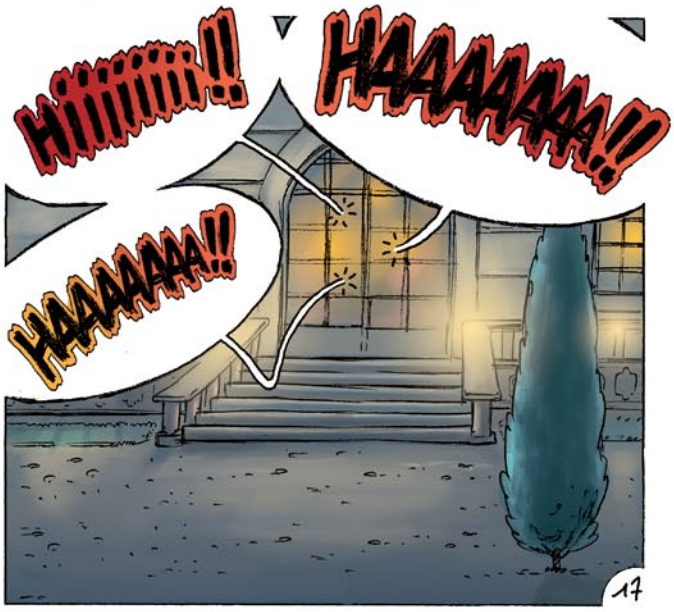
We have the right to know that products are safe and which chemicals are used in them.

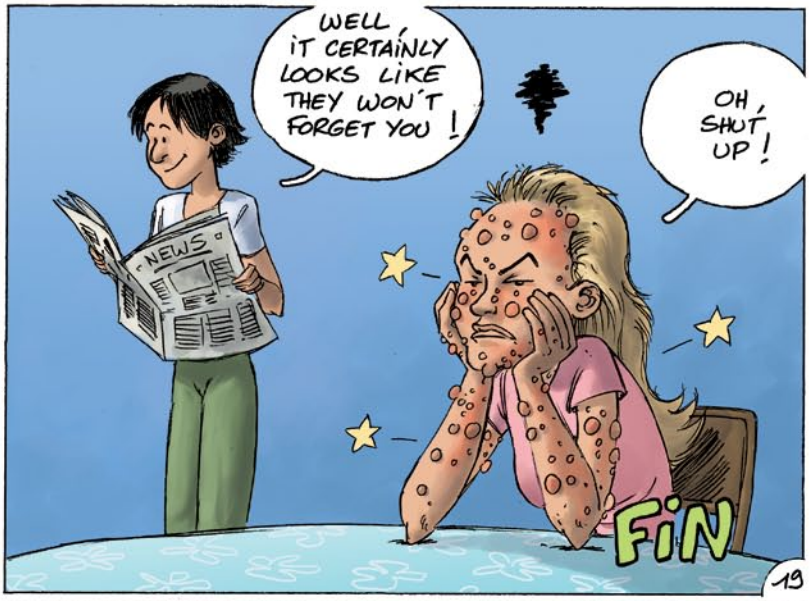

TONIGHT, I'LL BE THE BELLE OF THE BALL
1
2
3
SO, ARE YOU READY YET ? TIME FOR THE FAMOUS JET SET PARTY ?
YEP !
4
DON'T TELL ME YOU ARE PUTTING ALL THAT ON YOUR FACE !
OF COURSE I AM !
5
OH, COME ON ...
DO YOU KNOW WHAT SORT OF STUFF IS IN IT ?
NOPE ! AND I DON'T CARE EITHER
6
LISTEN TO THE INGREDIENTS IN THIS MAKE-UP :
OXYBENZONE
PHTHALATES
TRICLOSAN
TOLUENE
FRAGRANCES
IT MAKES MY HAIR STAND ON END !
7


WELL, THAT 'STUFF' MAKES ME LOOK BEAUTIFUL !
THAT'S ALL THAT MATTERS.
8
IT'LL MAKE YOU ILL, THAT'S FOR SURE !
DO YOU HAVE ANY IDEA OF THE RISKS THESE PRODUCTS POSE FOR YOUR HEALTH ?
9
YES OF COURSE !
LISTEN, THIS EVENING IS THE GALA OF THE YEAR.
10
THERE'LL BE DOZENS OF PRODUCERS, CASTING DIRECTORS ...
IT'S MY BIG MOMENT TO ATTRACT ATTENTION.
WELL, YOU WILL CERTAINLY DO THAT !
11
GO ON, MAKE FUN OF ME THEN !
BUT, AT LEAST I KNOW HOW TO GET NOTICED.
I HAVE TO LEAVE AN IMPRESSION.
12
AND IN THIS DRESS...
I'M UNFORGETTABLE
13









SCÉNARIO ET DESSINS : DAVID RATTE

COULEURS : SYLVIE SABATIER

HI UNCLE! STILL A BIT CRAZY?

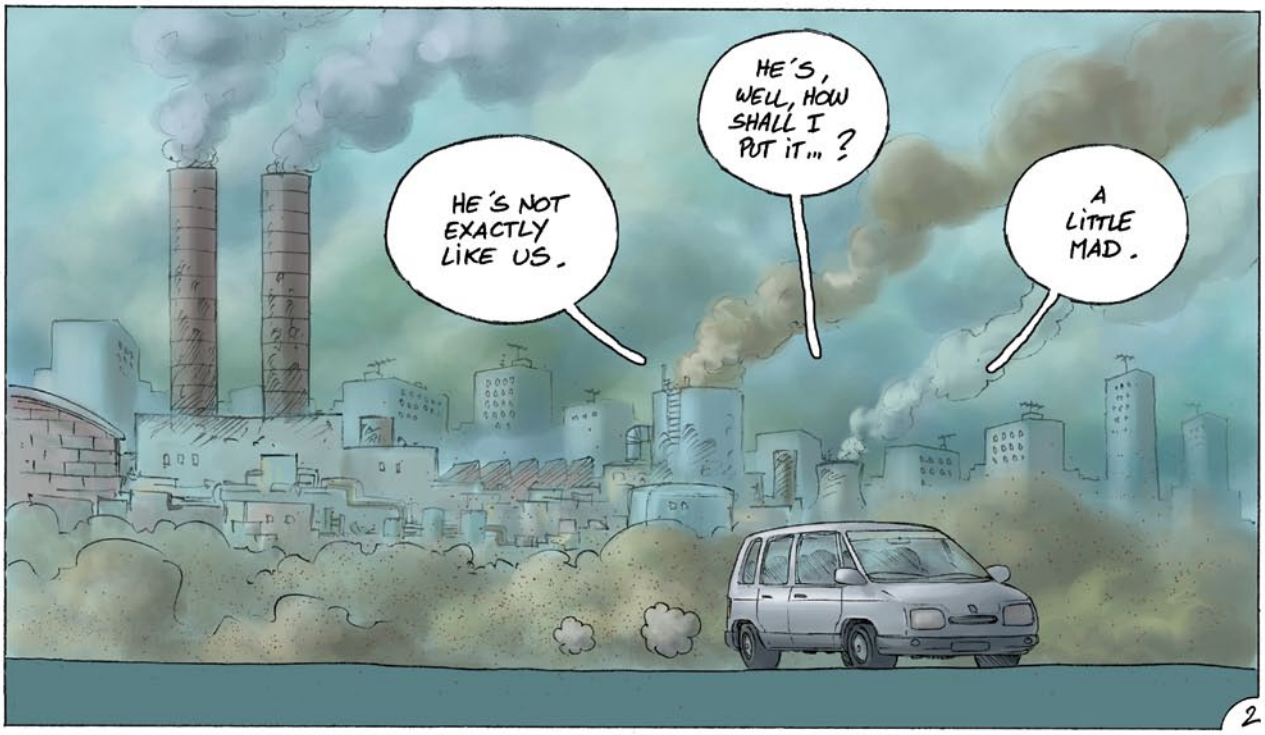
Switching to a healthier lifestyle also means asking governments for better protection from harmful chemicals

Since we are uncertain about the safety of some chemicals, we should act with precaution.

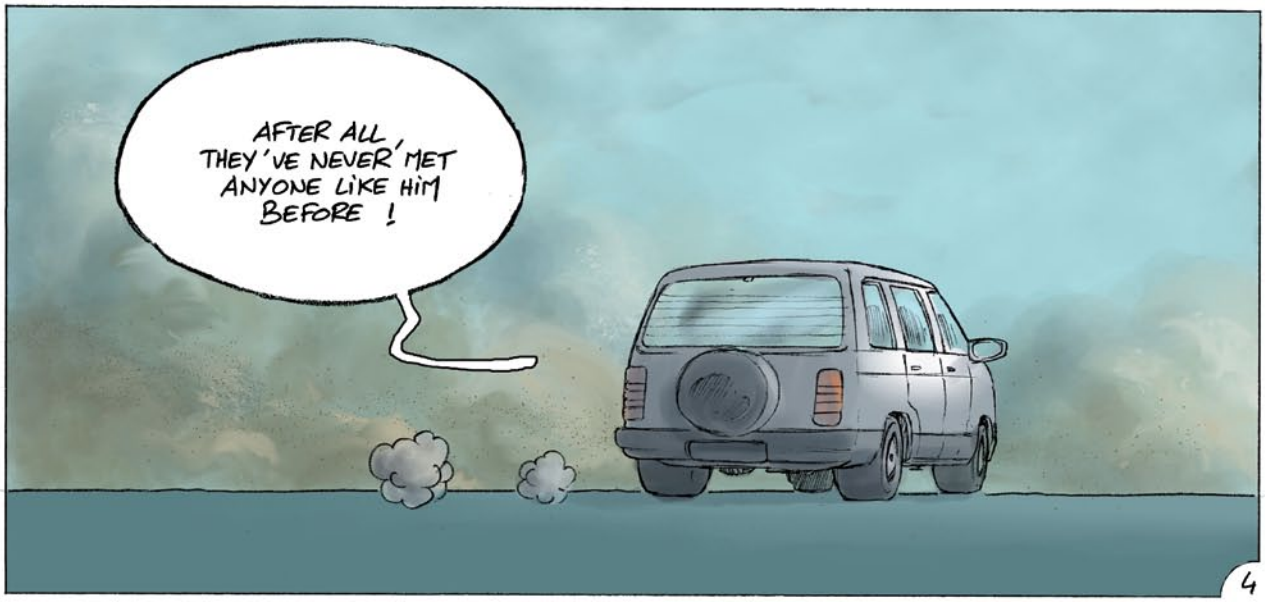
Safer alternatives to harmful chemicals exist. Ask your government!

Apart from changing our lifestyle as individuals, governments should help to protect us from harmful chemicals.

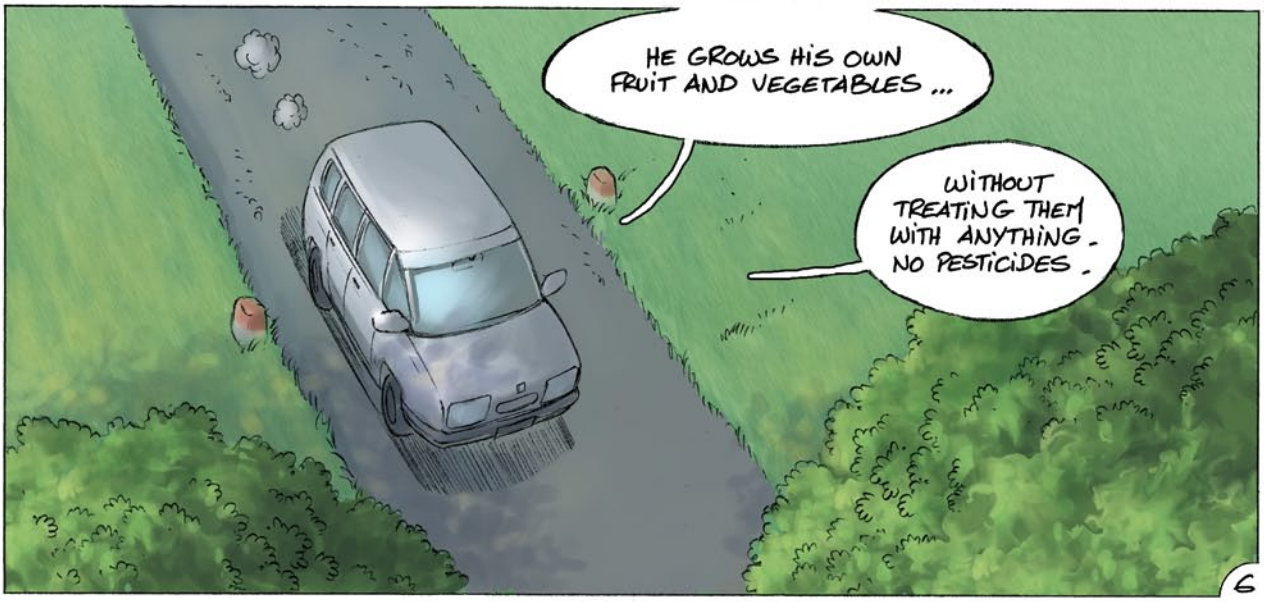

WELL KIDS, BEFORE WE GET THERE, I THINK THERE ARE A FEW THINGS YOU SHOULD KNOW ABOUT YOUR UNCLE HENRY.
1

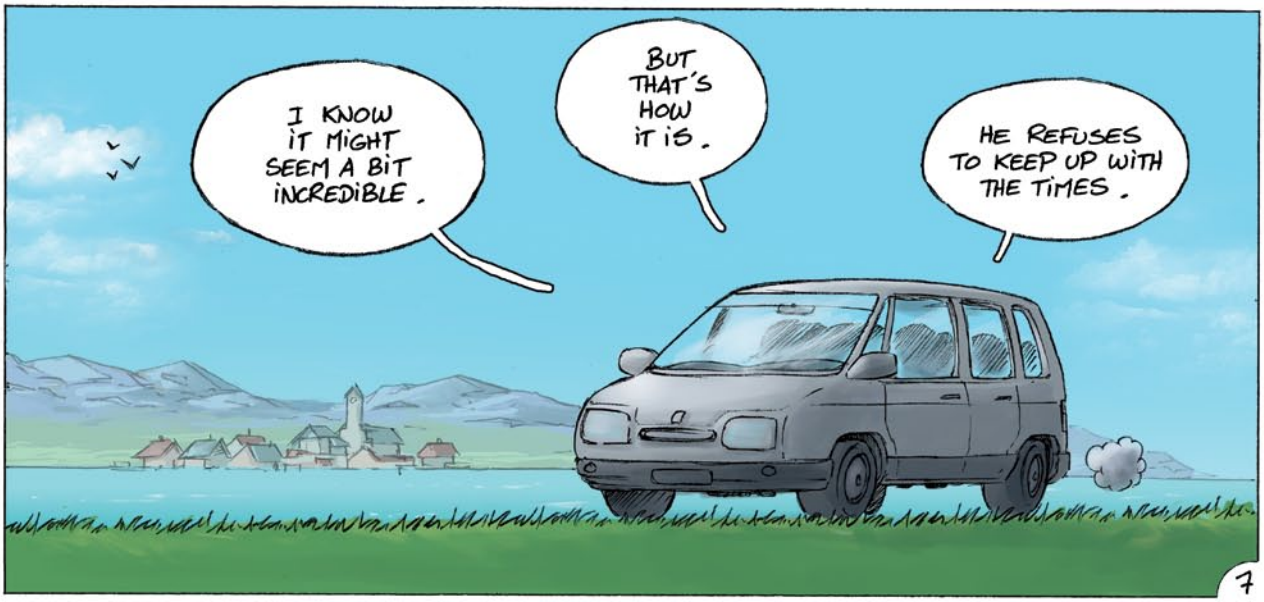

HE'S NOT EXACTLY LIKE US.
HE'S, WELL, HOW SHALL I PUT IT... ?
A LITTLE MAD.
2

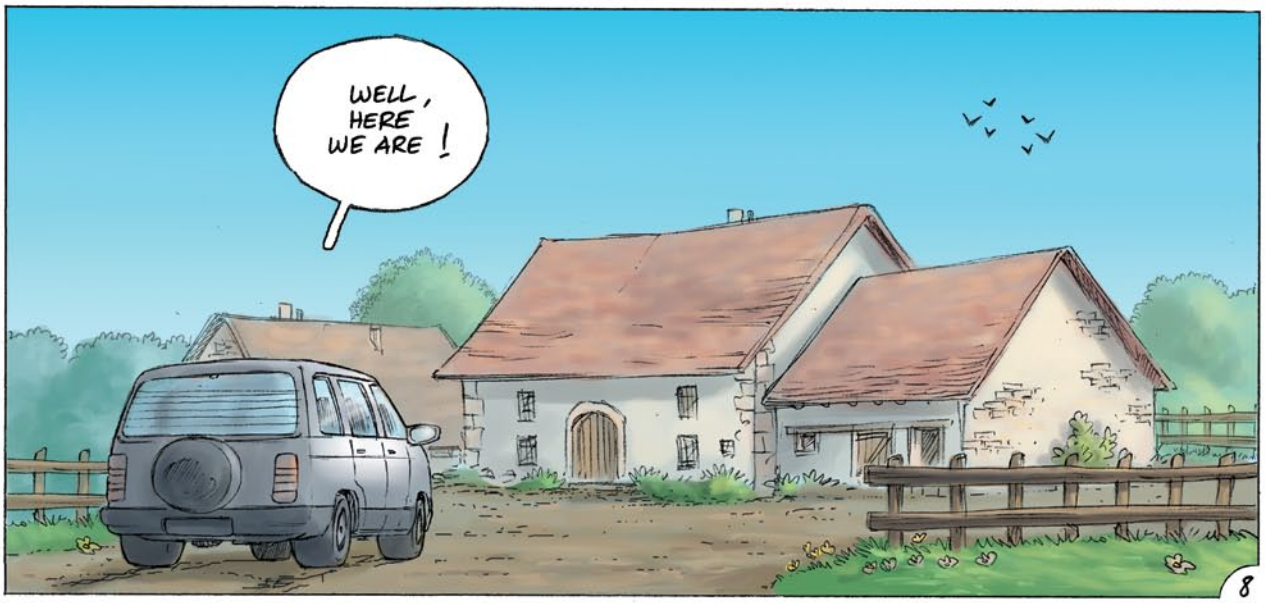

DARLING ! THERE'S NO NEED TO SCARE THEM !
I DON'T WANT TO SCARE THEM. I WOULD JUST RATHER THEY WERE WARNED, THAT'S ALL.
3

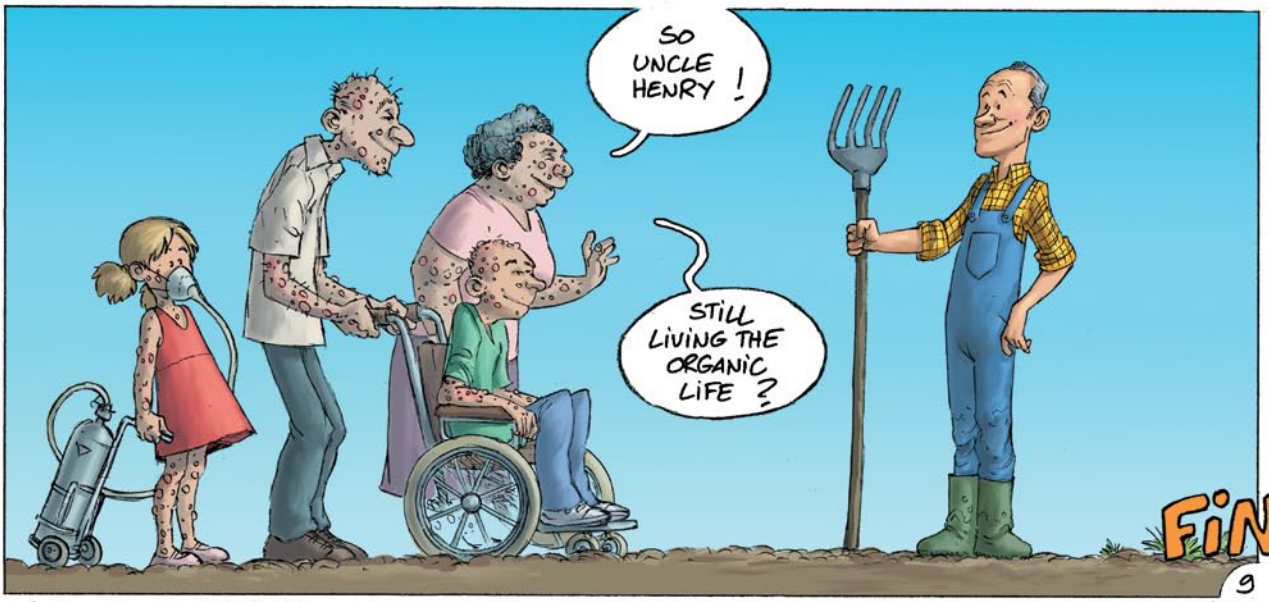

AFTER ALL, THEY'VE NEVER MET ANYONE LIKE HIM BEFORE !
4


SO, KIDS, YOU NEED TO KNOW THAT YOUR UNCLE HENRY DOESN'T LIVE LIKE US.
HE DOESN'T EAT LIKE US EITHER.
5


HE GROWS HIS OWN FRUIT AND VEGETABLES ...
WITHOUT TREATING THEM WITH ANYTHING. NO PESTICIDES.
6







SCÉNARIO ET DESSINS : DAVID RATTE

COULEURS : SYLVIE SABATER

Behind the dialogue

Provided here is some information on the topics as they arise in the cartoon stories. It is followed by a glossary, which explains various words and terms that you may not be familiar with. After that, we provide a list of resources for you to learn about different aspects of chemicals and health in greater depth. All links provided in this publication can be found on the HEAL website at: www.env-health.org/choosingourfuture.

GREEN PASTURES? (pages 3-6)

Box 4:

Pregnancy – Certain man-made chemicals are accumulating in human beings. These hazardous chemicals can be passed on from a pregnant mother to a baby in the womb. Even at very low doses, these chemicals may harm unborn babies and affect their future development and intelligence. A few industrial chemicals are the recognised cause of brain damage to children who have been exposed in the womb.

Smoking – Tobacco use seriously affects our own health and cigarette smoke harms the health of others. Tobacco smoke contains over 4,000 chemical compounds, including 50 substances that are known to provoke cancer and more than 100 are toxic (poisons). Tobacco use can damage a woman's reproductive health and can also cause complications during pregnancy for both mother and baby.

Box 5:

Non-stick pans – Many frying pans and saucepans with a non-stick coating that we use for cooking contain PFOA (perfluorooctanoic acid). Studies have shown that at normal cooking temperatures, these chemicals are released into the air and the food so that it enters our bodies. PFOA is suspected to be a cause of cancer, and may retard the growth and brain development of babies. PFOA is a perfluorinated chemical (PFC).

Box 7:

Car fumes – Breathing in benzene from motor vehicle fumes has been associated with certain types of cancer, such as leukaemia, and worsens the risk of asthma in children.

Leukaemia – is a type of cancer of the blood or bone marrow that can affect both children and adults. Inhaling benzene from car exhaust fumes can cause leukaemia. The rate of cancer in children is increasing each year in Europe.

Box 8:

Baby bottle – many baby feeding bottles are made of polycarbonate plastic (PC) that contains a harmful hormone disrupting chemical called Bisphenol A (BPA). When BPA leaches from the baby bottle into the liquid drink, very young babies and children are directly exposed to this chemical. The EU has banned Bisphenol A in baby bottles since 2011, as have a number of other countries.

Box 9:

Bisphenol A – BPA is a man-made chemical found in polycarbonate plastic (PC). It is produced in high volumes and used in every day products, such as baby bottles or the lining of food cans. BPA can leach from the tin or bottle into the food. Studies have shown that BPA can interfere with the normal functioning of our hormone system and produces adverse effects including reproductive, developmental and behavioural problems. The EU has banned Bisphenol A in baby bottles since 2011, and three EU member states are formulating a ban or have already banned Bisphenol A in food contact materials for children under the age of three.

Male fertility – There is mounting scientific evidence that men's ability to father children may be reduced as a result of exposure to certain man-made chemical substances.

Box 11:

Vulnerable – Compared with adults, small children and babies absorb and keep in their bodies more of the harmful chemicals that they are exposed to. They are also more exposed because they are nearer to dust on the ground where these chemicals can accumulate. Young children ingest the chemicals they are in contact with because they often put their hands in their mouths.

Pesticides – Exposure to certain pesticides, such as herbicides and insecticides, can increase the risk of children developing cancer, including non-Hodgkin's lymphoma and leukaemia.

Box 12:

Parkinson's Disease – People with long-term, low-level exposure to certain pesticides have a higher likelihood of developing Parkinson's Disease compared with those who have not been exposed. Parkinson's is a disease that causes stiffness, shaking and slowness of movement as a result of the death of certain cells in the brain.

Box 15:

Bronchitis – Bronchitis can occur when you inhale fumes or dust that cause irritation. Chemical solvents and smoke, including tobacco smoke, have been linked to acute bronchitis.

Asthma – Asthma is a chronic disease that affects your airways and makes it difficult to breathe. It is provoked by exposure to certain allergens, including toxic chemicals that can be found in tobacco smoke, pesticides, paint, hair dye products and so on. Pesticide exposure during childhood may increase the risk of asthma.

SUPERMAN AND THE MARTIANS (pages 7-10)

Box 8:

Analysing the subject – When body tissues (for example, blood, urine, breast milk or hair) are tested to learn more about people's exposure to pollutants, the process is known as human biomonitoring. The information collected from the analysis may provide links with possible health effects and suggest options for policy measures to reduce exposure.

Box 12:

DDT – is a pesticide that has been widely used as an insecticide in agricultural production and malaria control. Its use is banned in all European Union countries. This is because DDT accumulates in our body. Even though it was banned decades ago, traces of it can still be found in humans today. When pregnant mothers are exposed to DDT, the baby in the womb may suffer from developmental disorders in future life.

PBDE – are "flame-retardant" chemicals added to plastics and household furniture and used in televisions, computers and stereos to help prevent them catching fire. Exposure to polybrominated diphenyl ethers (PBDE) usually happens through inhaling the fumes, contact with house dust or via food. Scientists are concerned about the accumulation and persistent levels of PBDE found in human tissues. Some sub-types of PBDE are associated with cancer, thyroid problems and neuro-developmental toxicity.

DEHP – is a chemical compound widely used to soften PVC plastic in consumer goods and some medical disposable devices. It can leach from the PVC and has been classified by the EU as toxic to reproduction. Concerns focus on its potential to disrupt the human endocrine (hormone) system. The European Union has banned the use of DEHP and some other phthalates in PVC toys, and EU chemicals legislation known as REACH has put DEHP on a list of "substances of very high concern". It may eventually be banned from the EU market.

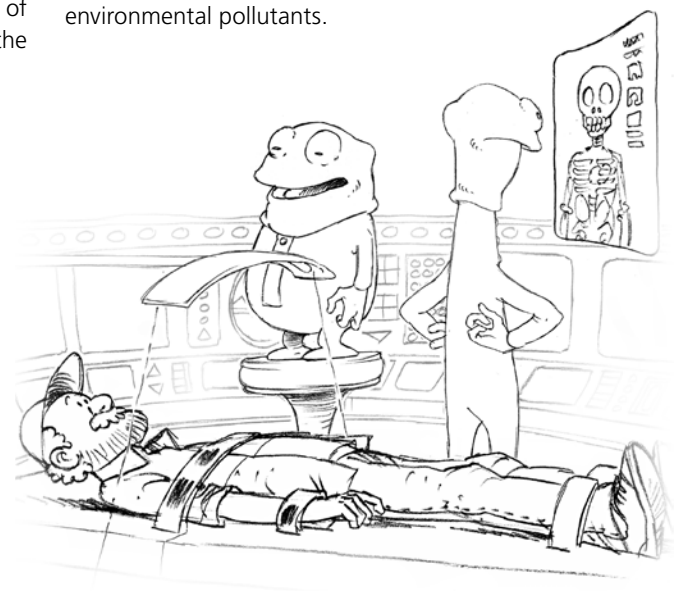
PCBs – were used widely as coolants and lubricants in electrical equipment, such as transformers and capacitors, until they were banned in Europe. PCBs are hazardous chemicals and persist and accumulate in our bodies. Humans may be exposed through eating certain fish that contain relatively high levels of PCBs. Chronic low-level exposure can cause liver damage, reproductive abnormalities, immune suppression, neurological and endocrine system disorders, retarded infant development, and stunted intellectual function. PCBs are found widely in human blood, fatty tissue and breast milk.

Box 13:

70 non-natural substances – Irrespective of where we live or what we do, we are every day exposed to numerous man-made chemical substances that enter our blood and may accumulate in our bodies, where they could damage our health. In WWF's Generation X campaign in 2005, samples from 39 European women volunteers were shown to contain a total of 73 man-made chemicals. The blood of each woman in the three-generational study contained organochlorine pesticides (OCPs) and polychlorinated biphenyls (PCBs), both of which are banned in Europe. Most blood samples contained at least one brominated flame retardant (BFR) and a "non-stick" perfluorinated chemical (PFC), such as PFOS or PFOA, which are mostly unregulated. Sixteen women had Triclosan in their blood, and the blood of nine women contained Bisphenol A.

Box 17:

Low sperm count – A common cause of male infertility is low sperm count. There are generally no predictable signs of low sperm count other than infertility. One of the causes for infertility is exposure to environmental pollutants.



UNFORGETTABLE CINDERELLA (pages 11-14)

Box 7:

Oxybenzone – is used as an ingredient in sunscreens and other cosmetics because it absorbs UV-A ultraviolet rays. A recent study by the U.S. Center for Disease Control (CDC) reveals that 97% of Americans are contaminated with oxybenzone (also known as benzophenone). UV filters have been linked to allergies, hormone disruption, and human cell damage.

Phthalates – Phthalates are a group of chemicals used in hundreds of products, such as vinyl flooring and wall covering, toys, glues and inks and as additives in cosmetics and toiletries. Studies show that some phthalates damage the developing sexual organs in male animals, such as rats. Certain phthalates, including DEHP, are therefore suspected of being hormone disruptors in humans.

Triclosan – is an anti-bacterial chemical used in soaps, deodorants, toothpastes, shaving creams, mouth washes and cleaning supplies and infused in an increasing number of consumer products, such as kitchen utensils, toys, and even socks and sportswear. It is a very toxic chemical that is commonly found in the human body in biomonitoring studies. Studies have raised concerns about their capacity to cause cancer, alter our hormonal system and create development problems in children. In the US, it is classified by the United States Environmental Protection Agency as a probable human carcinogen.

Toluene – Toluene is used in making paints, paint thinners, fingernail polish, lacquers, adhesives, and rubber and in some printing and leather tanning processes. It can affect the nervous and immune system and cause developmental delays in children.

Fragrances – fragrance enhancers are added to many products, such as perfumes, cosmetics and laundry detergents. The commonly used polycyclic musks are persistent chemicals, which accumulate in the food chain. They may cause skin allergies and some research suggests they may be capable of interfering with hormonal systems in fish and mammals. The EU chemicals legislation known as REACH has put musk xylene on a list of "substances of very high concern", which may eventually be banned from the EU market.

Box 16:

My face feels a little tingly – A cocktail of different chemical substances in personal care products and cosmetics, such as fragrances and preservatives, can cause skin allergies and irritation. Allergy can lead to a skin rash or eczema where the product is applied. The application of a cocktail of products containing hazardous chemicals could also lead to cancer, respiratory disorders, diseases of the nervous system and other conditions. This is known as the "cocktail effect".

HI UNCLE! STILL A BIT CRAZY? (pages 15-18)

Box 6:

Pesticides – More than 350 different pesticide substances are currently used in the European Union, including at least 45 substances, according to EU classification, that are carcinogenic, mutagenic, or toxic to reproduction, or which may have endocrine disrupting properties. More than 140,000 tonnes of synthetic pesticides are applied to EU food crops each year - equivalent to 280 grams of pesticides per European citizen. Almost half (45.7%) of food items tested are shown to contain pesticide residues, including 5% - one item in 20 - at levels above EU legal limits. While fruits and vegetables are most likely to be contaminated with pesticides, cereals, processed foods and baby foods are also often affected. The new EU Regulation on Pesticides will ban carcinogenic,mutagenic, or toxic to reproduction, or which may have endocrine disrupting properties.

Box 9:

Organic life – an organic lifestyle means not only eating organic food but also choosing to avoid synthetic chemicals and becoming aware of your environment and your health. Organic food is produced using methods that avoid the use of man-made fertilisers, pesticides, growth regulators and livestock feed additives. An organic life means healthy and sustainable consumption, such as eating and buying locally-produced food, choosing consumer, cleaning and gardening products that contain the least hazardous chemicals, and reducing energy consumption to avoid further air pollution and climate change.

Glossary

The references in this glossary originate from governmental or international agency sources where possible. Information on chemicals and on diseases related to chemical exposure is available on the Chemicals Health Monitor (CHM) website at: www.chemicalshealthmonitor.org.

CHEMICALS HEALTH MONITOR

This website provides authoritative information (in a form accessible to the non-specialist public) to support measures to reduce harmful effects of hazardous chemicals on human health and the environment, and to choose safer alternatives.

Subjects covered include: Asthma, Autism, Breast cancer, Cancer, Cardiovascular Diseases, Diabetes, Endometriosis, Infertility, Obesity, Parkinson's Disease, Prostate Cancer, Testicular Cancer, Testicular Dysgenesis Syndrome, and news on compelling science.

Allergy – An allergy is an overly sensitive reaction by your body to a particular stimulus, known as an allergen. People who have allergies are often sensitive to more than one allergen, such as dust, pollen, tobacco smoke, certain household products, and pesticides.

Asthma – Asthma is a chronic disease that affects your airways. Exposure to certain chemicals or irritant chemicals, such as tobacco smoke, certain pesticides, paint, hairdressing products and so on can provoke asthma. It is a serious health problem that affects worldwide millions of adults and children every day.

Benzene – Benzene is a component of products derived from coal and petroleum and is found in gasoline and other fuels. It is produced by burning. Benzene is also used in the manufacture of plastics, detergents, pesticides, and other chemicals. It has been associated with certain types of cancer, such as leukaemia.

Bioaccumulation – This means the accumulation of a substance, such as a toxic chemical, in various tissues of a living organism. Substances that bioaccumulate are persistent in the environment, they do not break down but rather accumulate in our bodies and in wildlife.

Bisphenol A – BPA is a man-made chemical substance found in polycarbonate plastic (PC). It is produced in high volumes and used in every day products, such as the lining of tin food cans and plastic bottles. BPA can leach from the tin or bottle into the food. It is an endocrine disrupting chemical, which means that it can disturb our hormone systems. The EU has banned Bisphenol A in baby bottles since 2011, and three EU member states are formulating a ban or have already banned Bisphenol A in food contact materials for children under the age of three.

Bronchitis – Bronchitis is an acute inflammation of the air passages within the lungs. It can occur when you inhale fumes or dusts that irritate the lungs. Chemical solvents and tobacco smoke have been linked to acute bronchitis.

CMR chemicals – an abbreviation for chemicals that are Carcinogenic – those that cause cancer, Mutagenic – those that cause change in DNA, and Reprotoxic, meaning they are harmful to human reproduction and can cause miscarriages and birth defects.

Cocktail effect – a term commonly used to describe the possible effect of being exposed to a mixture of chemical substances, for example, several different pesticides or chemicals in cosmetics. Testing of contaminants usually takes place one by one and does not take into account the effect of combinations of different chemicals that create a "cocktail effect".

DDT – DDT (dichloro diphenyl trichloroethane) is an organochlorine pesticide (OCP), which is banned in Europe. The International Agency for Research on Cancer (IARC) classifies DDT in group 2B as "possibly carcinogenic to humans".

DEHP – or Di (2-ethylhexyl) phthalate is a chemical compound widely used to soften PVC plastic in consumer goods and some medical disposable devices. It can leach from the PVC and has been classified by the EU as a CMR because it is toxic to reproduction. See also "Phthalates". The European Union has banned the use of DEHP and some other phthalates in PVC toys, and EU chemicals legislation known as REACH has put DEHP on a list of "substances of very high concern". It may eventually be banned from the EU market.

Exposure – When toxic chemicals are released, either through industrial or agricultural processes or from consumer products, they make their way into our bodies through the lungs (by us breathing in), through the skin (by absorption of toiletries cosmetics, for example), and through the mouth, which is known as ingestion.

Falling fertility – Infertility is a disorder of the reproductive system diagnosed when a couple fails to have a child after one year of unprotected, well-timed intercourse, or when the woman suffers multiple miscarriages. There is mounting scientific evidence that fertility decrease in men is related to exposure to certain man-made chemical substances.

Harmful/hazardous man-made chemicals – Chemicals are vital to life but some synthetic chemicals are harmful. We are exposed to chemicals everywhere - in our homes, our schools, in the air we breathe and the food we eat.

Some of them are toxic but remain in our bodies because they break down only very slowly or not at all. They can interfere with our hormone system, cause cancer, alter our genetic system or affect the intelligence and behaviour of our children.

Hormone disrupting chemicals or Hormone disruptors – Endocrine Disrupting Chemicals have the ability to mimic our hormones or interfere with the hormonal systems of people and wildlife, in particular with the thyroid hormones and sex hormones. The endocrine system is made up of glands, such as the pituitary and the thyroid, which make hormones. In lay terms these chemicals are known as hormone disruptors.

Oxybenzone – is a chemical used as an ingredient in sunscreens and other cosmetics because it absorbs UV-A ultraviolet rays. Oxybenzone is also a penetration enhancer, a chemical that helps other chemicals penetrate the skin. It is also known as benzophenone. In the EU, products intended for skin protection must be labelled if they contain 0.5% or more oxybenzone. There remain many gaps in the data on the safety of oxybenzone and its toxic impact on health.

PBDE – polybrominated diphenyl ethers (PBDE) are flame-retardant chemical compounds added to plastics and foam products to make them less likely to catch fire. While the US EPA has classified it as a possible carcinogen (causing cancer), the International Agency for Research on Cancer (IARC) does not classify it as a carcinogen pointing out that the data is lacking. It is known to persist in the environment and therefore categorised as a Persistent Organic Polluting chemical (POP). We are exposed to these types of chemicals mainly by inhalation, ingestion and skin contact with house dust. Because PBDE dissolve readily in fat, they can accumulate in fatty tissue and breast milk, and may therefore be passed on to babies and young children.

PCBs – Polychlorinated biphenyls represent a group of man-made chemicals with 209 different PCB molecules, known as "congeners". The commercial products were mixtures. PCBs were used widely as coolants and lubricants in electrical equipment such as transformers and capacitors, as heat exchange fluids and as flame retardants. PCBs are hazardous, persistent and bioaccumulative chemicals. Chronic low-level PCB exposures can cause liver damage, reproductive abnormalities, immune suppression, neurological and endocrine system disorders, retarded infant development, and stunted intellectual function. Even though the use and marketing of PCBs in the European Community has been very heavily restricted since 1985 and they are no longer produced in any EU country, PCBs are still frequently found in human blood serum, adipose (fat tissue) and breast milk.

Pesticides – A collective term for chemicals whose properties are capable of killing unwanted organisms. It includes *herbicides* - which kill plants, *insecticides* that kill insects, and *fungicides* that kill fungus. Some chemical compounds in pesticides accumulate in our body over the course of our lifetime. Work exposure to some pesticides can increase the risk of reproductive problems, and of developing Parkinson's Disease later in life. Exposure of the unborn child in the womb to traces of chemicals found in pesticides increase a future child's risk of developing chronic diseases or dysfunctions.

PFCs – Perfluorinated chemicals, including PFOA, are used in non-stick coatings on cooking utensils and are also used in fast-food containers, carpets, furniture and a host of other everyday household products. Recent studies suggest that they are retarding babies' growth. For example, a Danish study shows that PFOA levels in maternal plasma are inversely related with low birth weight.

PFOA – Perfluorooctanoic acid belongs to the family of perfluorinated chemicals or perfluorochemicals, known as PFCs. They are used to make products that resist heat, oil, stains, grease and water. PFOA is used in the coatings of non-stick cookware and all-weather clothing. Several scientific studies have shown it poses risks for the healthy development of babies and children.

Phthalates – are a group of chemicals used in hundreds of products, such as toys, vinyl flooring and wall covering, detergents, lubricating oils, food packaging, pharmaceuticals, blood bags and tubing, and personal care products, such as nail polish, hair sprays, soaps, and shampoos. Some of them are endocrine disrupting substances that can interact with hormone systems. Particular concern exists about their effect on the sex hormones – the female oestrogens and male androgens – because of the important roles of these sex hormones in the development of the reproductive system. The European Union has classified some phthalates as toxic to reproduction, and banned the use of several in toys and child care articles. The EU chemicals legislation called REACH has put several on a list of "substances of very high concern", and they may eventually be banned from the EU market.

POPs – Persistent organic pollutants, known as POPs, are toxic substances released into the environment through a variety of human activities. They have adverse effects on the health of people, wildlife and ecosystems.

Toxic substance – A substance is seen as toxic if it represents a threat to human and animal health. While some toxic substances can be quickly broken down in the body or in the environment, those that are also persistent and bioaccumulative, are of very high concern.

Toluene – comes from benzene and is used in making paints, paint thinners, fingernail polish, lacquers, adhesives, and rubber, and in some printing and leather tanning processes. It can have short- and long-term adverse health effects. Inhaling toluene can cause euphoria, dizziness and confusion while longer term the effects are on the central nervous system and many other organs. Exposure in the mother-to-be can affect the neurodevelopment of her future child.

Resources

The following publications are about the links between chemical and pesticide exposure and our health and the environment. These resources were developed by HEAL or collaborating organisations and are written to be easily accessible to a wide audience.

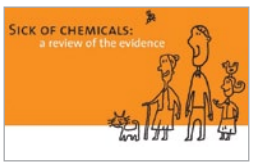
Download these resources and find additional information on www.env-health.org/choosingourfuture.

Harmful exposures

Chemical Cocktails: harmful mixtures upset our hormones

This leaflet by HEAL, CHEM Trust and WWF tells how scientists around the world believe that increasing rates of cancer, diabetes and infertility could be reduced by removing certain hormone disrupting chemicals from products that we use in our daily lives. It shows that there are many opportunities to better implement chemicals legislation to protect both humans and wildlife. It also contains tips on how to reduce individual exposure to chemicals.

Available in English and French



Sick of chemicals: A review of the evidence

This booklet gives a page each to different chemicals and offers some evidence of the links between the chemical and various health effects. It sets out some of the illnesses and conditions where there is strong or good evidence that chemicals contribute to them.

Available in English and German

TEDX
The Endocrine Disruption Exchange

TEDX (The Endocrine Disruption Exchange, Inc.)

TEDX is the only organization that focuses primarily on the human health and environmental problems caused by low-dose and/or ambient exposure to chemicals that interfere with development and function, called endocrine disruptors.

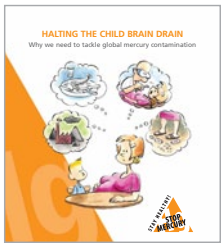
Visit the TEDX website on www.endocrinedisruption.com

Pesticides and Cancer

This website is part of the Europe-wide Sick of Pesticides campaign. It aims to raise awareness of the links between pesticides and ill health, and to mobilise collective action for change.

Visit the Pesticides & Cancer website on www.pesticidescancer.eu

Available in English, French, Dutch and Hungarian



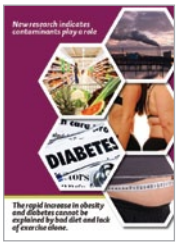
Stay healthy, stop mercury

This website explains the risks linked with how mercury is used in a variety of consumer, industrial and medical products and processes. It gives information on how it comes in different forms, most of which are toxic to humans, ecosystems and wildlife. It outlines how high doses can be fatal to humans, but also that even relatively low doses of mercury-containing compounds can have serious adverse neurodevelopment impacts. Mercury has recently been linked with possible harmful effects on the cardiovascular, immune and reproductive systems.

Visit the Stay health, stop mercury website on www.env-health.org/stopmercury

Available in English, French, Swedish, Spanish, Polish, Russian, Armenian, Bulgarian, Croatian, Slovak, Czech

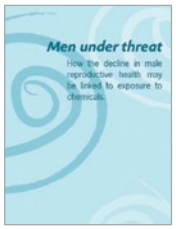
Health conditions and their links to the environment



Daily chemical exposure adds to obesity and diabetes risk

This leaflet by HEAL and CHEM Trust highlights how chemicals in food and consumer products may be causing obesity and diabetes. It provides evidence that chemicals are contributing to the risks and describes how individuals and policy makers can take preventive actions to avoid such exposure.

Available in English, French, Dutch, Hungarian and Spanish



Men under threat

This leaflet by HEAL and CHEM Trust briefly describes the evidence that hormonally active chemicals may be implicated in the deterioration of male reproductive health. It explains how these health effects could be reduced by replacing harmful chemicals with safer ones. The leaflet also provides advice on what people can do to minimize their exposure to threatening chemicals.

Available in English

Breast Cancer: Factors influencing the risk of breast cancer – established and emerging

This briefing by HEAL and CHEM Trust summarizes key information on the risk factors related to breast cancer with a particular focus on the potential role of certain chemicals in the environment. It is written in a language that is accessible to non-scientists and suitable for the general public as well as breast cancer suffers.

Available in English, German, French, Italian, Russian and Spanish

CHEMICALS HEALTH MONITOR

Chemicals Health Monitor

This website provides authoritative information (in a form accessible to the non-specialist public) on the likely role of chemicals in many different diseases and conditions. It also describes measures to reduce harmful effects of hazardous chemicals on human health and the environment, and to choose safer alternatives.

Visit the website on www.chemicalshealthmonitor.org

COLLABORATIVE ON HEALTH AND THE ENVIRONMENT

CHE (Collaborative for Health and Environment): Diseases and Disorders

CHE provides a diverse selection of science-based information on environmental factors that can contribute to disease and disability. The website covers peer-reviewed analyses of the science regarding environmental contributors to diseases and disorders as additional resources meant to complement the efforts of CHE's working groups and initiatives.

Girl, Disrupted: Hormone Disruptors and Women's Reproductive Health

The leaflet explains what hormone disruptors are and how these chemicals affect women's reproductive systems - particularly at critical stages of development. It highlights key scientific research regarding contaminants linked to conditions including early puberty, infertility, endometriosis, uterine fibroids, breast cancer and others.

Available in English, German and from Oct.2012 in French

Expand your awareness of the risks

Endocrine disrupting chemicals : Key facts you need to know

This leaflet provides you with essential key figures on endocrine disrupting chemicals (EDCs). It explains why it is crucial to protect pregnant women and children from EDCs, which consumer products contain EDCs, and the low-dose effects of EDCs.

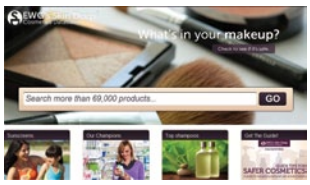
Available in English

Expecting a baby? Advice about chemicals and pregnancy

This leaflet provided by the Danish Environment Protection Agency (EPA) emphasizes that you should pay extra attention to chemicals if you are pregnant, or planning to become pregnant, because the child that you are carrying is very sensitive to external influences. It explains that we are exposed to many chemicals from many different products, every day, and it is a good idea to minimize this exposure as much as possible.

Visit the Danish EPA website and discover this leaflet on www.mst.dk

Available in English and Danish



EWG's Skin Deep Cosmetics Database

Check out which chemicals are used in your favourite health care products and cosmetics on the Environmental Working Group (EWG) Skin Deep website. It contains a database that gives practical solutions to protect yourself and your family from everyday exposures to chemicals. You can also find products which are screened for safety and therefore better for your health and the environment.

Visit the EWG's Skin Deep Cosmetics Database on www.ewg.org/skindeep.

Household Cleaning and Care Products

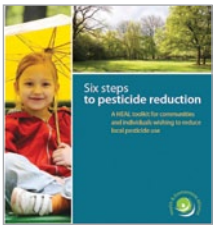
This is a guide on household cleaning &care products developed by Women in Europe for a Common Future (WECF). It explains possible health effects caused by hazardous chemicals and gives general tips on how to avoid them in day to day life. The guide is divided into several chapters regarding specific cleaners.

Pesticides in your food (Poster)

This poster developed by PAN-UK illustrates the extent of pesticide contamination of food. Discover more facts on pesticides in food, long-term effects of regular exposure to pesticides and why there is a need for more regulation.

Download the poster here www.pan-uk.org/archive/Projects/Food/foodposter.htm

What can we change together



Six steps to pesticide reduction: A HEAL toolkit for communities and individuals wishing to reduce local pesticide use

This toolkit is aimed at community groups and individuals wishing to reduce pesticide use in their local areas. It draws on HEAL's experience with international pesticides and health campaigns and is a six step guide for reducing pesticides in communities, packed full of examples and model campaign materials.

Available in English

Phyto Victimes Association: Network of professionals concerned about pesticide exposure

The website highlights the dangers of pesticides linking it to environmental and health risks. The association brings together people (or their relatives) who have used pesticides, such as farmers, because of their professional activities and who are experiencing health problems.

Visit their website on www.phyto-victimes.fr (in French)

Harmful chemicals in products you buy? Your right to know - What you buy and use could be affecting your health

This leaflet briefly describes how harmful chemicals are in many different consumer products and contaminate our daily indoor and outdoor environment. It explains the new European consumer 'right to know' policy: how you can use it to make better consumer choices, to influence companies to make safer products, and to encourage regulators to improve REACH, the EU chemicals law. The leaflet gives a model letter that consumers can use, and resources for further reading and taking action.

Available in English, Czech, Danish, German, French, Hungarian, Dutch and Slovenian

Environmental Health Network (Réseau Environnement Santé)

This network puts environmental issues at the heart of public policy in France, highlighting the relationship between health and environment. It is an increasingly important issue given the surge in cases of chronic diseases and the emergence of new diseases, such as chemical hypersensitivity. The website has a selection of information resources on chemicals and their links with chronic diseases.

Discover more information on http://reseau-environnement-sante.fr

Toxic menus

This study looks at the chemical contamination present in our daily diet. The analysis is part of a campaign in France to raise citizen and public authority awareness of the important role played by environmental risk factors among the causes of cancer. The campaign also encourages action leading to necessary policy changes. The Toxic Menus report covers the meals of a child in the course of one day.

Discover more information on www.menustoxiques.fr (in French)

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The **Health and Environment Alliance** is a leading European not-for-profit organization addressing how the environment affects health in the European Union. With the support of its over 70 member organizations, which represent health professionals, not-for-profit health insurers, patients, citizens, women, youth, and environmental experts, HEAL brings independent expertise and evidence from the health community to different decision-making processes.
Become a HEAL individual supporter if you share our vision of a healthy planet for healthy people.

The **Chemicals Health Monitor** provides an online source of information on chemicals and diseases. The project aims to highlight the rationale for more restrictions on certain chemicals, and for the substitution of all hazardous chemicals.

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E-mail: mdrgf2@wanadoo.fr
Website: www.generations-futures.fr

Générations Futures (GF) is a French not-for-profit organization founded in 1996. Formerly called MDRGF, GF works on issues related to toxic chemical pollution and particularly on pesticides, which are a major public health issue in France. Its aim is to bring attention to the negative consequences of industrial agriculture and promotes real alternatives, such as organic farming and integrated pest management (IPM) methods. GF is the leading NGO working on the pesticide issue in France.

design: www.beelzepub.com

The "Choosing our Future" website containing the cartoons, the full publication, and weblinks to all other materials mentioned in Choosing our Future is available at www.env-health.org/choosingourfuture

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