

ESTUDIOS



THE REGULATORY IMPLOSION. EMOTIONS AND GENDER IN THE ERA OF PLASTIC

ESTELA GUTIÉRREZ RODRÍGUEZ

THOMSON REUTERS
ARANZADI

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*To the constancy, for helping me persist.
To failure, to disappointment, to make me stronger.
To compassion, wishing that never stop accompanying me.
To the wisdom, avoiding me from major blunders.
For your time, always thank you.
Estela*

Title

Emotions and gender in the era of plastics takes us at a time when chemicals are altering our hormones, they are present everywhere, but one of the greatest sources of exposure for people is the one commonly called “plastic”. By altering the hormones, they are altering our emotions, and from before birth interfering in our gender and therefore in human reproduction.

We have been exposed to these chemicals for almost 100 years, a century. The accumulation and persistence of endocrine disrupting chemicals, both in our body and in the environment, indicates that if regulation and public policies do not change, the human being will experience a metamorphosis in gender and emotions that will affect future societies.

We are walking towards the era of uncertainty, altering emotions and gender, we are going to discover why it is a public responsibility in human security on a global environment, as well as how to prevent and minimize our own exposure, thus improving our health.

“The paradox of regulatory implosion carries the clear message that if the State does not regulate objectively and diligently, others will do so for it, and although the consequences, as in the case of EDC, can be dire. The new form of future self-regulation advances us”.

Estela Gutiérrez

“We are guilty of many errors and many mistakes, but our worst crime is the abandonment of childhood, neglecting the source of life. Many of the things we need can wait. The child cannot. Now is the time when their bones are forming, their blood is making, and their senses are developing. We cannot answer them ‘tomorrow’. Their name is ‘today’”.

Gabriela Mistral, Nobel Prize in Literature.

*Let's do respect and be fair.
Thanks for sharing.*

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When I was a child, my teacher, the one from General Basic Education told at that time; *“She is a very lively girl, she does not pay attention, and she does not concentrate”*.

Luckily we now call it, attention deficit disorder and hyperactivity.

I spent my days facing the wall.

It is fair to start the book like this, since the pages of a book are not made by the writer, they germinate, develop and mature along the way to personal growth.

Thanks, must go then, to all those people with whom I have been meeting on my way and who have participated in my development and growth as an author, positively and negatively, to all of them we owe the grain of sand that we contribute with this book to the science of global law to human security.

There is no way to stop unknowing.

Estela

Estela Gutiérrez is a legal scientist and has been awarded “the extraordinary award for her doctorate in Global Law to Human Security”, from which these pages emanate. Graduated from Law with 3 master’s degree in Administrative Law, Risk Prevention and Health and Communication for Political Leadership, among other

studies, acquiring a holistic and multidisciplinary academic vision.

The author has been working twenty-one years for the Public Administration (Government policies), acquiring extensive knowledge in the development of government and public policies in very diverse matters. Her stays in the European Parliament and in countries like China, New Zealand and Vietnam, among many others, have endowed it with a global vision in the international arena.

She currently works sharing her knowledge at the University Autonomous of Barcelona and the Australian International University RMIT based in Vietnam, which allows her to continue expanding her research on global regulation to human security, thus collaborating in innovation for different public policies for the future.

0

The essence of the book

*“To change the world, my friend Sancho,
that is not madness, not utopia, rather justice”.*
(Attributed to Miguel de Cervantes).
Don Quixote (1605-1615)

It is said, that if Aristotle or Darwin woke up they wouldn't know what to work on, what university to enroll in, or what to specialize in. We have limited transversality between study sciences, we have left aside the typical family doctor who knew and cured you of everything, “mine” was called Don Pedro.

“Don Pedro” looked at you and already solved.

In science, multidisciplinary cooperation is essential. And this is especially the case in the field of human security, in order to provide answers to a complete human being that is interconnected, in an ecosystem that is being seriously damaged.

The academic rigor and the holistic vision of the scientific writer should not be at odds with innovation, diversity and creativity, but quite the opposite.

Darwin conducted his study on the evolution of species based on observation, and over the course of 30 years, he called it an unfinished work. This is also an unfinished book, because works that are based on

observation must always remain in an incomplete state, in a continuous quest.

Once wonder is awakened, you cannot stop learning, research becomes the path to a happiness that is cravings more and more amazing. This has been the case with the study of environmental hormones. Aware that time is a precious asset, I have tried to contribute to the knowledge with these pages, looking forward to sharing with the reader.

This book attempts to empower people, bringing to the surface information about what is happening with our elegant hormones, informing to mobilize and awaken latent public responsibilities.

As a result of research based on years of rigorous study, the title of the book *Emotions and Gender in the Age of Plastic* is based, as we shall see, on the regulation of endocrine disrupting chemicals, present anywhere today, and the greatest exposures is through the use of what is commonly called "plastic".

By altering hormones, it has been proven the alteration of our emotions and from before birth, interfering with our gender and therefore with our sexuality, which is responsible for human reproduction.

We have been exposed to these chemicals for almost 100 years, the accumulation and persistence of endocrine disruptors both in our body and in the environment, indicates that if nothing changes, the human being will experience a human metamorphosis in gender and emotions that will affect to the future societies. We are walking into an era of uncertainty, by disturbing emotions and gender.

***Emotions and Gender in the Age of Plastic* is a regulatory implosion to global human security** that alerts about what is happening with endocrine disrupting chemicals. The book presents the conclusions that the author has reached, observing the consequences of almost a century that we accumulate of exposure to these artificial hormones.

In the hope and wish that readers will enjoy it as much as the author, and once again, thank you for your time, this being one of our most precious assets.

1

Introduction

"Each one should be asked what is within their reach".

Antoine de Saint-Exupéry
(1900-1944)

.1. THE PURPOSE OF THE BOOK

This is a book of global law to human security.

Law that requires collaboration between sciences, was born to guarantee human security in a holistic way, in order to give responses to the situations of changing environments, the same ones that accompany the emerging globalization of demanding societies.

This makes it exciting, to the book and to the form of law.

The first part of the book focuses on explaining what are the chemical substances known as endocrine disruptors (EDC for its acronym in English *Endocrine Disrupting Chemicals*), as well as very briefly what is the global framework for their regulation¹.

We will take into account their worldwide repercussion, since they are a set of substances of a chemical nature that have a harmful effect on any living organism, being capable of causing hormonal alterations, affectations to the immune system, cancer, genetic dysfunctions,

causing urogenital malformations, other dysfunctions and diseases of the male and female reproductive system, as well as dermatological problems and even neurological problems at the cognitive level, among many others.

The reason is that hormones are involved in both sexual differentiation and the coordination of various organs and many other processes in the human organism. In this sense, the most concerning issue, is that although some EDC have been analyzed and the use of some of them have been restricted for years, the scope and long-term impact of the so-called “cocktail” or mixture of these multiple substances that affect both, the environment, as well as the human organism around the world, has not been tested yet².

The so-called endocrine disrupting, also known as environmental estrogens, phytoestrogens or environmental hormones, artificially supplant natural hormones, altering the functions that they must perform in organisms. As we will see, are found in each of our daily routines, so human exposure is extremely high and worrisome.

EDC can be present for example, in containers for food, whether they are lunch boxes, bottles, tableware, in clothing and footwear accessories, in cosmetic and perfumery products, for example in common nail polish, in incense, moisturizing cream or shower gel, in make-up, in children’s and sex toys, feeding bottles, pacifiers, in construction materials, in soda cans, in neonatal intensive care units, can be found in the bags containing products related to blood (platelets, red blood cells, etc.), and even in the tubes that transport these fluids and oxygen, in resins for dental aesthetics, in pesticides

applied in fruit cultivation, in insecticides, or in the combustion of the vehicles with which we live daily, as well as in so many other places.

These pollutants can reach the blood through the skin, through the digestive tract and even through the respiratory tract and be distributed throughout the body, which is easy to happen given the magnitude of public exposure to these substances. In the case of pregnant women, the problem is more complicated since the fetus will be the main affected.

Our entire ecosystem is in serious danger, considering that, the exposure to EDC is indiscriminate, massive, continuous and global³.

In the second part and among the objectives of these pages, we will see how the cross-sectional study of different academic disciplines alerts the public system of cost overruns, due to health disorders such as cancer, diabetes, obesity, difficulties in reproduction, cognitive dysfunctions, among other disorders all dependent on the endocrine system, and affected due to both, massive and prolonged exposure over time of citizens to these substances.

Likewise, and do not miss these chapters, the hypothesis of how prolonged exposure to these substances is leading us to a transformation in the human gender and emotions is presented. Indeed, evidence of connections is shown between exposure to hormone disrupting chemicals and gender, emotional, and behavioral differentiation in the human species. Both factors that will determine future global economies and societies.

Then, for the first time in the science of law, the theory called “regulatory implosion to global security” is exposed. This legal institution is framed as one of the “paradoxes of regulation”⁴. In this sense, we will see how public policies and regulations, are based on both *hard law* and *soft law*.

It happens that when different external pressures give rise over the capture of the regulator by the regulated, the particular interest over the general interest, and the individual to the community, the consequences are reflected in the current social and climate (in) justice.

Likewise, the birth of the discipline “ethology of global law” is presented, born to respond to the needs of global administrative law in the immediate future. The ethology of law merges the study of human behavior in the environment, applying the observation of medical and economic sciences, in this way it can be detected *ex ante* the needs and behaviors of world societies, advancing regulation of disorders that may arise, regulate preventively and thus improve investment in public spending.

1. Vid; Sushil Khetan, *Endocrine disruptors in the environment*, New Jersey, U.S.A: Edit. Wiley, 2014.

2. A cocktail or mixture is understood to be the set of chemical substances that, acting individually, are known to have the potential capacity to negatively affect people’s health. However, it themselves, acting together, have not yet been evaluated, so the long-term impact it may have on the human body is unknown. See; Andreas Kortenkamp, Michael Faust, 2018. “Regulate to reduce chemical mixture risk”, *Science*, Vol. 361 (6399): 224-226, doi: 10.1126. <https://science.sciencemag.org/content/361/6399/224/tab-pdf>.

3. Werner Brack, “Effect-directed analysis of complex environmental contamination”. Edit. Springer Berlin Heidelberg, Germany, 2011.

4. Cass R. Sunstein. *The Revolution Rights: Redefining the Regulatory State*. Edit. Ramón Areces University. (Madrid, 2016).

2

Chemicals, alter hormones (EDC)

.1. BACKGROUND

The chemical substances with the capacity to alter the hormonal system are, legally speaking, the great unknown. One of the most important moments in this matter were the complaints made by the biologist Rachel Carson in 1960 through her work, *Silent Spring*, in which she denounced the damage that was being caused to flora, fauna and the environment in general, due to the use and abuse of substances such as DDT, contained in pesticides or “biocides” (as she herself called them) that were used indiscriminately in crops to kill insects and thus improve production⁵.

The United States citizens did not wait, and the streets were full of public protests, demanding governmental responsibility in prevention and security with respect to these substances. The first institutions to react in defense to such demonstrations were the World Health Organization (WHO) and the United Nations (UN), among others.

It was the beginning of community activism through Non-Governmental Organizations (NGO) in defense of the environment and the human ecosystem. We call them, “Global Communities”, organizations that today, already essentially represent legal-administrative globalization.

The European Union (EU), as we will see later, at the time when the possible consequences of these chemical substances were scientifically made known, also alerted its institutions to carry out the pertinent investigations.

Several EU member states began to establish national research programs. Most of them did so, alarmed by the scientific reports on the matter and appealing to point 99 of the judgment of May 5, 1998 of the Court of Justice, in whose case C180 / 96 it indicated.

“When doubts remain about the existence or scope of risks to people’s health, the institutions should adopt protective measures without necessary to wait for the reality and seriousness of such risks to be fully demonstrated”.

.2. WHAT ARE ENDOCRINE DISRUPTING CHEMICALS (EDC)?

Endocrine disrupting chemical substance (EDC) is understood to be any artificial chemical substance with the capacity to create an alteration of the hormonal system in living beings⁶. This alteration ends up causing a modification in the functioning of the endocrine system, either by replacing, blocking or suppressing the natural connections between hormones and cells, consequently causing innumerable health disorders⁷.

Among the particularities of these pollutants, we find that they can reach the blood through the skin, through the digestive tract and even through the respiratory tract and be distributed throughout the body, which is easy to happen given the magnitude of exposure to these substances.

One of the difficulties in identifying the damage produced by EDC, is the fact that they are toxics “*bioaccumulative*” that is, in most cases, the human being must have a continuous and accumulated exposure to these substances in order the organism manifests some kind of diseases or health disorder related to these chemicals». Another one, is the high difficulty for the biodegradability⁸.

In addition, the factors of the disorders that these chemicals can cause in health are multifactorial, that is, although it is proven that they can produce cancer, multiple cognitive problems, depression, cause of diabetes or obesity, these same diseases are manifested by many others factors as well, which makes difficult the cause-effect relationship⁹.

The WHO report as early as 2002, evidenced the harmful effects of exposure to endocrine disrupting chemicals in the world ecosystem, both for human and animal health and for the environment as a whole¹⁰.

EDC substances according to the International Program for Protection against Chemical Products (PIPPQ), can be of two main types:

Synthetic hormones, including those identical to natural ones such as oral contraceptives, hormone replacement treatments and some additives in food for animals, designed with the intention of disrupting and manipulate the endocrine system.

Man-made chemicals designed for use in industry (eg, in certain industrial cleaners), agriculture (eg, in some pesticides), and in consumer goods (eg, in some plastic additives).

“This group also includes by-products of industrial processes such as dioxins, which are suspected of interfering with the endocrine systems of people and animals”¹¹.

Well, let’s briefly see how these chemicals are being regulated, so that the reader can get an idea of the level of security that is currently guaranteed to us at the legal level.

.3. THE STOCKHOLM CONVENTION

The 1998 Protocol on Persistent Organic Pollutants of the 1979 Convention on Long Distance Transboundary Air Pollution, already warned of the importance of regulating some types of harmful chemical substances¹². The Protocol specified that the risk was both for the environment and for human health, and that it also went beyond our borders, ceasing to be a national issue to become a transnational matter and of community responsibility¹³.

On May 17, 2004, the Stockholm Convention was approved¹⁴, representing an important moment for the regulation of pollutant chemical substances (POP for its acronym in English *Persistent Organic Pollutants*)¹⁵, also identified as endocrine disruptors.

Among the objectives of the signatory countries of the Stockholm Convention¹⁶, is to sensitize and mobilize citizens through education, to promote information and knowledge of the dangers of these substances¹⁷.

It must be said that today, it is still an unfulfilled objective since there is still a great ignorance about it,

not only in the field of education, but for the world population in general¹⁸.

Currently, the biggest challenge for the signatories of the Stockholm Convention is to stop producing these substances so that they are totally eliminated from the environment and although great advances have been made with some of the existing substances, polychlorinated biphenyls (PCBs) are still one of the very present substances among the population. They continue to be present as pesticides, agrochemicals, transformers and electronic cables, capacitors, among others, and within the hundreds of existing EDC, we are referring only to PCBs¹⁹.

.4. THE ROTTERDAM CONVENTION

The Rotterdam Convention arises from the manifest and generalized concerns in relation to the increasing number of both production and commercialization of polluting chemical substances in the environment in the mid-eighties, including a large number of pesticides. Mainly the dangers that began to entail imports and exports of these substances to developing countries without the ability to react to movements in international trade.

The first reactions obtained were the United Nations Environment Program (UNEP) that established the London Guidelines for the exchange of information on chemicals in international trade in 1987 and the United Nations Organization for Agriculture and Food (FAO) through the creation in 1987 of the International Code of Conduct on the Distribution and Use of Pesticides.

Both organizations, “global communities”, in turn created the prior informed consent (PIC) procedure²⁰.

“Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade” was approved and was open for signature on September 10, 1998, for subsequent entry into force on February 24, 2004.

The objective of the agreement is literally: “(...) *to promote the shared responsibility and joint efforts of the parties in the sphere of international trade of certain dangerous chemical products in order to protect human health and the environment against possible damage and contribute to its environmentally use, facilitating the exchange of information about its characteristics, establishing a national decision-making process on its import and export, and disseminating those decisions to the parties*”.

To this day, it is well understood how ambitious this objective was at that time, especially if we take into account the amount of substances that are included in the group of dangerous chemicals²¹.

It seems as if, for humanity, the simple act of adhering to a convention removes the risks and consequences inherent to chemicals and to hormone-disrupting chemicals.

Once again, it is only about some of the endocrine disrupting substances, they are never considered as a whole.

.5. THE BASEL CONVENTION