

**APPEL
DE
PARIS**



14 November 2014

**10th
Anniversary**

Anniversary Congress of the Paris Appeal



**UNESCO
Paris**

Why the Paris Appeal?

Introduction

Program

Speakers presentation

Abstracts



ECERI

European Cancer and Environment Research Institute

PARIS APPEAL

International Declaration on the dangers of chemical pollution on health



On the 7th of May, 2004, in UNESCO headquarters, internationally renowned scientists, doctors, representatives of environment and patients associations gathered in a same will during the Congress « cancer, environment and society » organized by ARTAC. The Paris Appeal, a historical declaration on the dangers of chemical pollution for health, arose from this gathering of scientists and Non Governmental Organisations.

***On the occasion of the Tenth Anniversary of the Paris
Appeal***

Fourth Anniversary Congress

**Gaining recognition of health and
environment attacks as a crime against
humanity: strategizing and setting up**

**November 14, 2014
Maison de l'UNESCO
125 avenue de Suffren – 75015 Paris**

Organized by ARTAC and ECERI



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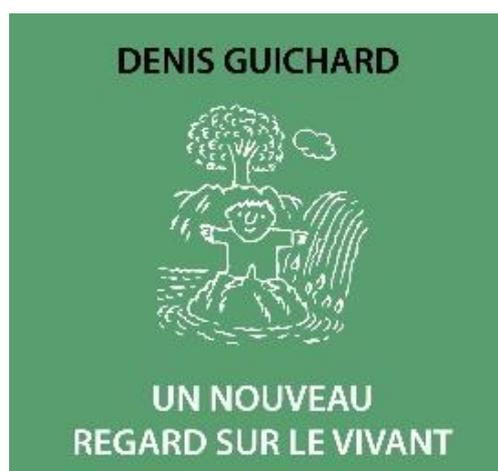
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Why the Paris Appeal ?

It was after the first scientific publications regarding the biological effects of endocrine disruptors and after several international declarations, (1) including the Wingspread Statement in 1991, 1993 and 1995 dealing with the extinction of some animal species due to chemical pollution, that the Paris Appeal was proclaimed in 2004.

Reaching beyond previous declarations, this Appeal asserts that a great number of current diseases are caused by the degradation in the environment, that due to their extreme vulnerability, children are in danger and that, if men go on polluting the environment as they do today, it is mankind itself that is at risk (2).

The conclusions of this Appeal have unfortunately long been confirmed by numerous scientific papers.

Thus, the environmental origin of many cancers as we suggested (3) has now been recognized by a growing number of scientists, as can be seen, in the USA, through the 2008-2009 Annual Report of the President's Cancer Panel, presenting measures to reduce environmental cancer incidence (4), while more recently, in 2011, the Asturias Declaration focusing on the links between cancer and the environment has called upon the WHO and governments to act and decrease the growing cancer incidence and mortality by reducing pollution and implementing primary prevention to protect populations (5).

In addition to this, following the Paris Appeal, many other international declarations were proclaimed (6), including the Faroes Statement, which stresses children's vulnerability to any type of pollution, in particular at the fetal development stage, and the biological (epigenetic) mechanisms probably involved.

In 2006, during the second colloquium of the Paris Appeal, 68 scientists suggested 164 measures and technical solutions intended for European authorities to fight against chemical pollution (7).

Unfortunately, though the Paris Appeal has now been signed by a large number of scientists, including several Nobel Prizes in Medicine, approximately 1500 NGO, close to 300,000 European citizens and about 2 million European physicians from the "Standing Committee of European Doctors" (8), measures taken to cut back on chemical pollution in Europe, as in the rest of the world, remain entirely inadequate.

Since 2006, numerous scientific publications have confirmed the fact that many diseases or affections, such as obesity, type 2 diabetes, low fertility, high blood pressure, asthma, autism, Alzheimer's and Parkinson's diseases, originate, like cancer, from the environment.

Moreover, based on recent experimental data, it is hypothesized that, as for some hormone-dependent cancers, such as testicular, breast and prostate cancers, some of these diseases or affections could also start at the fetal stage due to its extreme vulnerability to any type of pollution and that mechanisms involved could come from epigenetic alterations. The latter could indeed not only explain the onset of these diseases later

on at the adult age, but also cause a susceptibility to these diseases passed on to descendants over 4 or 5 generations, due to their hereditary nature.

The third colloquium of the Paris Appeal focused on children's health and aimed at:

1. reviewing recent scientific breakthroughs regarding the effects on health of chemical pollution when it impacts the different periods of biological vulnerability, i.e. before, during and after birth and up to puberty,
2. drawing up an inventory of the most dangerous chemicals for the body, in particular in children,
3. specifying the biological mechanisms involved – they are essentially epigenetic – to explain the genesis of diseases from the fetal stage and their potential transmission to future generations as a hereditary susceptibility,
4. mobilizing physicians and health professionals, in particular pediatricians, so that the severity of the current situation as regards children may be recognized by European authorities and authorities in general, and in the face of growing pollution, specific actions to protect pregnant women, mothers and their children may be implemented as quickly as possible worldwide,
5. reducing all forms of pollutions from their sources, based on general measures presented in 2004 in the Paris Appeal and specified in 2006 in its memorandum,
6. spreading these measures to the whole world, adapting them to each country according to its development phase and fighting first and foremost against poverty, as poverty, by encouraging undernutrition and pollution, is in itself a risk factor that promotes these diseases.

The objectives of the fourth Paris Appeal colloquium is to assess at the level of society and pollution what the Paris Appeal brings to the international community worldwide, to add to the Paris Appeal the dangerous health consequences of the physical pollution, including the electromagnetic one and of the microbial pollution worldwide, since very dangerous epidemics and pandemics of viral origin are now coming, for which medicine and health systems may be not sufficiently prepared to respond. Finally to pose the problem of environmental health in terms of ethics and international law since there are now worldwide many victims of pollution and of environmental destruction, which concerns not only humans but also wild animals.

Dominique Belpomme
University Professor
President of the ARTAC, ISDE-France

References :

(1)

Statement from the work session on chemically-induced alterations in sexual development: the wild/human connection – Wingspread Conference Center, Racine, Wisconsin, July 1991

Bern, H et al pp1-8 in “chemically-induced alterations in sexual and functional development: The wild/human connection”. Eds T Colborn and C Clement, Princeton Scientific Publishing Co, NJ, US

Statement from the work session on environmental endocrine disrupting chemicals: neural, endocrine and behavioural effects. Erice, Sicily, November 1995.

Declaration of the Environment Leaders of the Eight on Children’s Environmental Health – Environment Leader’s Summit of the Eight, 1997 - <http://www.g8.utoronto.ca/environment/1997/miami/children.html>

Hormonally active agents in the environment US National Research Council, August 1999.

<http://www.ourstolenfuture.org>

The Yokohama Consensus Statement International Workshop on the Effects of Endocrine Disruptors in Living Things. Yokohama City University, December 1999

Summary Points from the National Toxicology Program’s Endocrine Disruptors Low-Dose Peer Review, October 2000

Declaration on Children, their Health and their Environment.- International Society of Doctors for Environment - <http://201.216.215.170/isde.org/images>

(2)

Paris Appeal - <http://www.appel-de-paris.com/presentation/>

(3)

Irigaray P and Belpomme D (2011) Mechanisms of Environmental Carcinogenesis. In: Nriagu JO (ed.) Encyclopedia of Environmental Health, volume 3, pp. 655–665 Burlington: Elsevier.

Irigaray P and Belpomme D (2010) Basic properties and molecular mechanisms of exogenous chemical carcinogens. *Carcinogenesis*, 31(2):135-148.

Belpomme D, et al. (2007) The multitude and diversity of environmental carcinogens. *Environ Res.* 105(3):414-429.

(4)

2008-2009 Annual Report President’s Cancer Panel. Reducing environmental cancer risk. What we can do now. US department of Health and Human services, National Institutes of Health, National Cancer Institute.

(5)

Asturias declaration : a call to action. International Conference on Environmental and Occupational Determinants of Cancer : Interventions for Primary Prevention. Asturias, Spain, March 2011

http://www.who.int/phe/news/events/international_conference/Call_for_action_en.pdf

(6)

The Prague Declaration on Endocrine Disruption

<http://www.ehponline.org/docs/2007/10517/suppl.pdf>

Vallombrosa Consensus Statement on Environmental Contaminants and Human Fertility Compromise, October 2005

Declaration of Mar Del Plata. Meeting of Ministers of Health and Environment of Americas (HEMA). June 2005

The Faroes Statement: Human Health Effects of Developmental Exposure to Chemicals in our Environment, May 2007 - [http://www.blackwell-synergy.com/doi/full/10-1111/j.1742-7843.2007.00114.x](http://www.blackwell-synergy.com/doi/full/10.1111/j.1742-7843.2007.00114.x)

Chapel Hill Bisphenol A Expert Consensus Statement: Interpretation of Mechanisms, Effects in Animals and Potential to Impact Human Health at Current Levels of Exposure. 2007

<http://www.environmentalhealthnews.org/news/science/2007/2007-0801bpaconsensus.pdf>

California medication Association Adopts Resolution on chemical Policy in California. November 2007

<http://www.healthandenvironment.org/articles/doc2616>

Scientific consensus Statement on Environmental Agents Associated with neurodevelopmental Disorders. The Collaborative on Health and the Environment’s Learning and Developmental Disabilities Initiative, February 2008. - <http://www.iceh.org/pdfs/LDDI/LDDistatement.pdf>

Resolution of safer chemical policies World Federation of Public Health Associations (WFPHA), 2008

<http://www.wfpha.org/pdf/PolicyResolutions2008/safer%20chemicals.pdf>

Control of Biocides in the European Union. Collegium Ramazzini

<http://www.collegiumramazzini.org/news1.asp?id=63>

WHA Statement of Environmental Degradation and Sound Management of Chemicals
The World Medical Association, Inc, 2010 -<http://www.wma.net/en/30publications/10policies/e17/index.html>

(7)

Mémoire de l'Appel de Paris – <http://www.appel-de-paris.com/memorandum/>

(8)

Third Paris Appeal Congress : Children health and Environment

(9)

Standing Committee of European Doctors - <http://www.cpme.be/index.php>

Introduction

Opening of the congress by Professors Janos Frühling and Dominique Belpomme



Pr Janos FRUHLING

Born in Budapest, is a Belgian Professor of Medicine. A specialist in nuclear medicine, former director of the Jules Bordet Institute in Brussels and former President of the French speaking Medical Board of Brabant, he is the Honorary Permanent Secretary of the Royal Academy of medicine of Belgium and the former secretary of the Federation of European Academies of Medicine. He is currently the Vice-President of the Scientific Board of the ECERI, the *European Cancer and Environment Research Institute in Brussels*.



Pr Dominique Belpomme

Medical doctor having conducted research for IARC (International Agency for Cancer Research) at the *Roswell Memorial Institute (USA)*, is an Honorary full Professor in clinical oncology at the University Paris-Descartes and the President of the ARTAC (*French Association for Research on Treatments against Cancer*). A member of numerous European and American learned societies and the initiator of the Paris Appeal, he now heads the *European Cancer and Environment Research Institute (ECERI)* in Brussels.

Welcome Speech by Pr. Dominique Belpomme

In memory of Lorenzo Tomatis and Stéphane Hessel

In tribute to James Lovelock

Ladies and Gentlemen,

Welcome to the fourth Congress of the Paris Appeal. We are celebrating today its tenth Anniversary.

First of all, please let me remind you of the three key articles of this appeal, signed in 2004 by numerous scientific key players worldwide, all the Medical Associations of the then 25 European Member States, 1,500 NGOs and 350,000 European citizens:

Article 1: Most diseases are caused by chemical pollution;

Article 2: due to this pollution, children are in great danger;

Article 3: Should we go on polluting the environment as is the case today, the Human race itself is in great danger.

Ten years have gone by. The time has come to assess what this Appeal has changed.

It has no doubt contributed decisively to the implementation of the European REACH regulation, which, as you already know, has introduced control measures to market chemicals.

In France, it has also undoubtedly contributed to the promulgation of the Environmental Charter of 2004 in the form of the constitutional law of 1st March 2005.

It has also redirected medical research in the field of the environment in Europe and in different places across the world. This has been quite noticeable in France, in particular, with the spectacular turnaround of INSERM that now focuses on demonstrating the links between cancer and the environment.

And finally, it has contributed to raising civil society's awareness as regards the dangers of pollution and the need to protect nature.

Unfortunately, many highly detrimental downsides remain:

- the absence of a coherent policy in terms of environment and public health, with notably the fact that the environmental issue in the emergence of today's diseases and affections is definitely not addressed,

- the absence of environmental prevention which results from it,
- a health situation which, despite WHO's analyses and recommendations, is degrading all over the world, with notably the striking rise of the incidence of cancers, Type 2 diabetes, obesity, Alzheimer's disease, psychiatric affections, which are as many worldwide public health scourges, and in children, the increase in congenital malformations and autism. Today, in so called developed countries, one child out of 100 is autistic! A record high!

To this, we should add the persistence in the world of infections, such as paludism and tuberculosis, which had been wrongly said to be stemmed thanks to medical advances during the creation of WHO in 1948, and the onset of entirely new viral infections, such as AIDS or else the Ebola epidemic, infections that are here to remind us that the rape of nature comes at a human cost, that medical advances have their own limits and that prevention remains the only way to avoid such public health scourges.

- And finally, the denial of public and political authorities faced with current scientific data, proving unequivocally that the degradation of the environment harms our health, whereas "polluters-don't-pay" continue to pollute without restraint and pollution victims have actually become the "polluted pay".

The current fight must thus essentially place itself at the moral and judicial level and it is not without significance that this fourth congress is taking place here at UNESCO, in the country of human rights. In accordance with articles 2 and 3 of the Paris Appeal, it is indeed obvious that any pollution, any destruction of nature, because they result in attacks on health, life and the survival of future generations, must be considered as a crime and is therefore liable to prosecution.

In that respect, the contacts that I have had with some and other people, and in particular with the International Criminal Court, have led me to believe that a solution can be found by considering pollution and the destruction of nature as a public health crime, and even, as suggested by some countries around the world, a genuine crime against humanity, when the crime involves the survival of a whole people, and this in accordance with the principle of integrity of future generations and thus the survival of the human race. For the damages caused today impact planet Earth as a whole and what is at stake here is humanity's fate.

This Congress will thus have three sessions: the first one dedicated to taking stock of current scientific knowledge; the second one, to contemporary societal and political drifts; and the last one, to legal

considerations aimed at matching the law with current societal evolutions and scientific considerations.

And yet, in its necessary evolution, the law could easily be sidetracked, if considering only concepts and ideologies, it neglected unbiased percepts fundamentally provided by science, in other words the natural laws of physics, chemistry, biology and finally medicine. For unlike any philosophy or even, in a way, human societal laws, the laws of nature as recognized by science are fully determined and thus cannot be modified and adapted to the human law. They are coercive. Hence the urgent necessity to bring together law and science, law specialists and scientists, and more specifically in terms of health, law specialists, biologists and medical doctors.

During this congress, two amendments to the Paris Appeal will be proposed and submitted to vote:

- Extending the Appeal to physical pollution, in particular, electromagnetic pollution and microbial pollution;
- Extending the Appeal to the legal field, by stipulating that the most severe pollution and destruction actions of nature are actually a criminal offense liable to prosecution.

And to conclude it is under the aegis of scientific truth, the independence of research and ethic that this Congress is held, within the framework of an international assembly of researchers, law specialists, NGOs and politicians.

I would like to thank all of you for supporting this new initiative.

Pr Dominique Belpomme

PROGRAM OF THE CONGRESS

Friday, November 14, 2014:

8h30 Registration

9h00 **Welcoming participants**

Opening of the congress: Janos Frühling (Belgium)

Opening speech: Dominique Belpomme (France)

First session: Mankind in danger: scientific proofs

Moderators: Janos Frühling (Belgium) and Luc Montagnier (France)

9h15 **Cancer and the environment: The President's Cancer Panel report**

Richard Clapp (USA)

9h30 **The multifactorial genesis of chronic diseases**

Luc Montagnier (France)

9h45 **The extreme vulnerability of the fetus and its consequences on health**

Ernesto Burgio (Italy)

10h00 **Electromagnetic fields and health: the new paradigm**

André Vander Vorst (Belgium)

10h15 BREAK

10h30 **Radioactive pollution and health: the nuclear risk**

Paul Lannoye (Belgium)

10h45 **The destruction of the fauna and flora**

Allain Bougrain-Dubourg (France)

11h00 **Climatic warming and its consequences**

Jean Jouzel (France)

11h15 **Vote for the 1st amendment to the Paris Appeal Declaration**

11h30 **Journalists' questions (Moderator : Hervé Kempf)**

12h00 LUNCH BREAK

Second Session: societal drifts and political denial

Moderators: Paul Deheuvels (France) and Jean Huss (Luxemburg)

13h30 Chemical pollution and health : from Science to Politics

Paul Deheuvels (France)

13h40 Corporate ties that bind: the manipulation by vested interests

Lennart Hardell (Sweden)

13h50 GMOs: Conflicts of interest and scientific controversies

Gilles-Eric Seralini (France)

14h00 Pesticides and health: the case of the French West Indies

Josiane Jos Pelage (France)

14h10 The public health policy in Canada

Louise Vandelac (Canada)

14h20 Roundtable: the environment and health European Policy

Aline Archimbaud (France) Hiltrud Breyer (Germany), Gert Peter Bruch (France), Marie Christine Dewolf (HEAL), François Grosdidier (France), Chantal Jouanno (France), François Veillerette (PAN-Europe).

15h00 Journalists' questions (Moderator : Fabrice Nicolino)

Third session: Science to support Justice and Criminal Justice to rescue Humanity

Moderators: Laurent Neyret and Etienne Riondet (France)

15h40 End Ecocide : which strategy ?

Valérie Cabanes (France)

15h50 Towards a legal protection for future generations

Emilie Gaillard (France)

16h00 Necessity to impose criminal sanctions on behavior against the Environment and the Health.

Antonino Abrami (Italy)

16h10 Roundtable: Gaining recognition of health and environment attack as a crime against humanity survival: setting up

Ahmed Alami (Marocco), Marie-Odile Bertella-Geffroy (France), Florent Compain (France), Sandor Fülöp (Hungary), Corinne Lepage, Laurent Neyret (France), Damien Short (UK).

Point of view by Distinguished Ambassadors of Bolivia, Ecuador, Guatemala and the Philippines.

17h00 Discussion with the audience: vote for the 2nd amendment to the Paris Appeal Declaration

17h20 CONCLUSION : Laurent Neyret (France)

First session

Mankind in danger: scientific proofs

Moderators: Janos Frühling (Belgium) and Luc Montagnier (France)



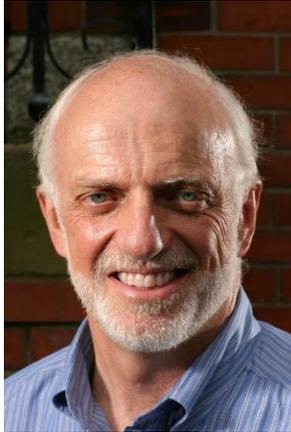
Pr Janos FRUHLING

Born in Budapest, is a Belgian Professor of Medicine. A specialist in nuclear medicine, former director of the Jules Bordet Institute in Brussels and former President of the French speaking Medical Board of Brabant, he is the Honorary Permanent Secretary of the Royal Academy of medicine of Belgium and the former secretary of the Federation of European Academies of Medicine. He is currently the Vice-President of the Scientific Board of the ECERI, the European Cancer and Environment Research Institute in Brussels.



Pr Luc MONTAGNIER

A French virologist and biologist, Professor Emeritus at the Pasteur Institute where he was at the head of the Viral Oncology Unit, a Research Director Emeritus at the CNRS and a former Professor at the University of New York. He is a member of the French Science Academy and of the French Medicine Academy. He was one of the recipients of the Nobel Prize in Medicine for the discovery in 1983 of HIV and he now leads the *World Foundation for Aids Research and Prevention* at UNESCO.



Pr Richard Clapp

An American epidemiologist, holding an MPH from Harvard School of Public Health and a DSc in Epidemiology, is the Honorary Director of the *Massachusetts Cancer Registry* that he founded. In addition, he co-chairs the *Greater Boston Physicians for Social Responsibility*. He is Professor Emeritus of Environmental Health, Boston University School of Public Health, USA.

Cancer and the environment: The President's Cancer Panel report

Professor Richard Clapp will discuss the 2008-2009 President's Cancer Panel Report, titled "Reducing Environmental Cancer Risk – What We Can Do Now," released by the U.S. National Cancer Institute in May, 2010. He will describe the composition and purpose of the President's Cancer Panel and its relationship to the national cancer program, with examples of previous reports. Professor Clapp will outline the process of public meetings and presentations by experts on industrial carcinogens, agricultural chemicals, air and water pollutants, and radiation as contributors to the cancer burden in the U.S. He will summarize the major conclusions and recommendations by the Panel in its final report.

Professor Clapp will present some of the public responses, including statements from the American Cancer Society and Health Care Without Harm, after the release of the report. He will describe cancer prevention and public information initiatives underway in Massachusetts, in response to the recommendations of the President's Cancer Panel Report. One example is the transition from perchloroethylene as a clothing cleaning solvent to "wet-cleaning," a water and steam-based alternative. He will conclude with a description of a larger initiative to promote a cancer-free economy by working with partners such as the Breast Cancer Fund and the Blue-Green Alliance, a coalition of union and environmental organizations in the U.S.



Pr Luc MONTAGNIER

A French virologist and biologist, Professor Emeritus at the Pasteur Institute where he was at the head of the Viral Oncology Unit, a Research Director Emeritus at the CNRS and a former Professor at the University of New York. He is a member of the French Science Academy and of the French Medicine Academy. He was one of the recipients of the Nobel Prize in Medicine for the discovery in 1983 of HIV and he now leads the *World Foundation for Aids Research and Prevention* at UNESCO.

The multifactorial genesis of chronic diseases

The importance of the environment in the growing number

While mean life expectancy is steadily growing, the number and importance of chronic diseases is also increasing; this is not only an issue related to ageing populations, and this increase can be seen in every country, including in developing countries.

The causes of this phenomenon are multifaceted; among involved factors, we should point out those related to individual behavior (smoking, alcohol addiction, diet, lack of physical exercise), but also others related to our environment: pollution of the air, chemical pollution, pollution of drinking water, ionizing and non-ionizing radiations.

Their cumulative effect, even at low doses, may result in chemical and physical changes of our vital constituents, including DNA at the genetic and epigenetic level. They may also directly act either by inducing oxidizing stress (excess of free radicals derived from oxygen) and thus cause irreversible pathological changes. Furthermore, these factors may also impact our bacterial and viral parasites by rendering them more virulent. Recent results obtained by our laboratory showing this will be presented.



Dr Ernesto BURGIO

Italian pediatrician, is the President of the scientific committee of the *International Society of Doctors for Environment*. He is a consultant pediatrician for national, European and international projects and he specializes in epigenetics.

The extreme vulnerability of the fetus and its consequences on health

Since the discovery, in the mid-80s, of a relationship between low birth weight and increased risk of coronary heart and metabolic diseases (obesity, diabetes 2) in adulthood, many epidemiological, clinical and experimental studies came to support the hypothesis of a ***fetal origin of chronic diseases***. Poor ***programming*** of the foetus results in greater vulnerability to cardiovascular diseases, hypertension, diabetes and metabolic syndrome, which could contribute to an ***epidemic of chronic diseases***.

The keyword for better support all this is ***epigenetics*** a term that has become fashionable in recent years, yet interpreted in many and various ways. In fact epigenetics should not be considered as a (small) part of genetics (DNA marks, histone modifications, ncRNAs interference that modulate transcription and translation ...). On the contrary epigenetics should be recognized, as the most appropriate and powerful tool to develop a new systemic and molecular model of the genome, understood as a dynamic and fluid network unremittingly interacting with the environment. In this model the ***epigenome*** (the *software* of DNA) should be considered as the meeting place between the information coming from the environment and the information constituting the base memory of a species, specified in the DNA (the *hardware*) . In this context we should consider the environment as a stream of information - simple (photons, EMFs) or complex (organic molecules, xenobiotics) – constantly interacting with our cells (transmembrane receptors, signaling proteins, nuclear receptors, genome) pushing them to change their ***epigenetic programming*** to better fit reality. This dynamic interaction between the environment and the (epi)genome plays a major role throughout the embryo-fetal ontogeny, which is the period of life characterized by a maximum of developmental plasticity (that is, the deployment of a multicellular organism from a single cell, the zygote, to produce a complex system comprising 200 types of genetically identical cells (characterized by the same DNA), each one with its own epigenome and specific morpho-functional characters. In this context, the key concept is ***fetal programming***: a very specific concept that

refers to the capacity, and at the same time the need for fetal cells to determine their adaptive and predictive epigenetic program in response to the information coming from the mother and, through it, from the world outside. It is important to note that in this new "paradigm" it could be the incorrect information (pollutants, endocrine disruptors) and the *mismatch* among the information that the child receives before and after birth that produce an increase in chronic diseases (obesity, diabetes 2, cardiovascular disease, neuropsychiatric diseases ..) in adulthood. The concept of the developmental origins of health (**DOHaD** for **Developmental Origins of Health and Disease**) provides a unifying theory for all these observations.

This new paradigm seems to be extremely useful for understanding the current epidemiological transition, characterized by the relentless increase in chronic diseases - inflammatory, degenerative and neoplastic - and the constant anticipation of age at onset: namely, the "epidemics" of obesity and type 2 diabetes, autism and other neurodevelopmental disorders, neurodegenerative diseases, allergies, autoimmune diseases and cancer. Which allows another, very important consideration, especially in the field of environmental epidemiology: if it is true that these ever-increasing diseases are, at least in part, the result of an early exposure to pollutants or an otherwise altered epigenetic *programming* in utero or even in gametes, then it is evident that every usual epidemiological and toxicological evaluations are quite inadequate to interpret the epidemiological transition.



Pr André Vander Vorst

PhD, is Professor Emeritus at the Catholic University of Louvain (Belgium). He heads the Microwave Laboratory that he founded following his work at the *Massachusetts Institute of Technology* and Stanford University. A member of the *Institute of Electrical and Electronic Engineers*, he also belongs to the Academia Europea and the Electromagnetic Academy.

Electromagnetic fields and health: the new paradigm

We will focus here only on very high frequency fields: frequency range called microwaves, from 300 MHz to 300 GHz, with wavelength of 1m to 1mm respectively. This wavelength is that of objects commonly used in our everyday life, as well as that of numerous components in the human body. It is in that frequency range that most “wireless” applications have been developed: GSM, DECT, WiFi, and so on.

In 1982, the European conference of Postal and Telecommunications Administrations (CEPT) formed the Global System for Mobile Communications (GSM) in order to set up a pan-European land communication mobile system. Phase I of GSM specifications were published in 1990. In 1993, 36 GSM networks existed in 22 countries, with 25 additional countries having chosen or considered the GSM system. At the beginning of 1994, there were approximately 1.3 million users around the world. In the late 1990's, it became a booming business: today there are over 3 billion devices in the world. Other “wireless” applications have developed since then.

We should here make a distinction between science and scientific expertise. When a scientist, who then plays his/her part as an expert, is interviewed to convince public opinion, this scientist is being used. If scientific terms are used in a decision made outside the scientific domain, for instance the legal domain, they become an expert's analysis. The analysis of the expert's role is essential.

Health effects depend on the tools used to assess them. A concept, such as the Specific Energy Absorption Rate (SAR), measures only absorption, *i.e.* the biological effect due to overheating only: its use obviously cannot bring us to state that magnetic field effects are not measured. Direct effects should be taken into account of course, but indirect effects too. There is no reason to exclude *a priori* micro-thermal and non-thermal effects: again, SAR cannot detect the latter. Soviet

standards were much more demanding than Western standards: non-thermal effects were recognized in the East and not in the West. And finally, non-reversible biological effects should be set aside from reversible effects.

If the purpose is to study the possibility of micro-thermal and non-thermal effects, considering biology and electromagnetism is not enough: to these subjects, thermodynamics should be added, as shown by different soviet and Russian studies. In electromagnetism, indeed, temperature cannot be controlled: it is a consequence of possible overheating. As opposed to this, in thermodynamics, temperature is basic input: constant temperature may be imposed.

Electro-hypersensitivity appeared only around year 2000. It is estimated that approximately 5% of the population suffer from this. Will that become a large-scale issue? Unfortunately, we do not have enough results of microwave measurements on human beings. We cannot therefore draw a direct causal link in that field. Indirect measurements may help us to clarify this. Currently, there are many questions regarding the fact that hypersensitivity may not be caused by microwave exposure alone, but also another physical or chemical stimulus.

The financial aspect weighs heavily on the “wireless” issue and on the ability to perform independent and unbiased health studies. Furthermore, the general public does not have access to the most advanced technology for an application as simple as the GSM mobile phone: with the same use, the ambient field could be reduced by a factor of 5. Instead of rationalizing devices, one application is piled on top of another one and the ambient field to which the population is submitted keeps increasing. At the same time, demand is constantly growing: the number of data requested per base station increases ten-fold every five years.



Dr Paul LANNOYE

Doctor in Science specialized in nuclear risks. Belgian politician, founder of the political party “Ecolo”, he is a former member of the European Parliament and the former President of the environmental group at the European Parliament.

Radioactive pollution and health: the nuclear risk

Since 1950 and the advent of the civil nuclear industry, the risks of low-dose irradiation and recommendations in terms of radiation protection are defined by the ICRP (International Commission for Radiation Protection).

The European legislation (Euratom Treaty) is clearly inspired by the recommendations of this institution. The current directive (November 2013) is based on recommendations issued in 2007 by the ICRP (ICRP Publication 103-2007).

The basic principles of radiation protection are: justification, optimization (ALARA) and limitation.

Justification requires that any practice involving exposure to ionizing radiation be justified by its economic, social and other benefits.

The principle of optimization (ALARA) means that exposures should be kept as low as reasonably achievable.

Limitation refers to the fact that the sum of doses received by an individual may not exceed an imposed dose limit.

The legal dose limit is 1mSv/year. Below this dose said to be “effective”, the risk is considered negligible and acceptable.

Over the recent decades, numerous facts have invalidated not only the basic assumptions and limit-values prescribed by ICRP, but also their underlying risk model.

It is not justified to consider only fatal cancers and genetic damage caused to the first generation of descendants as detrimental to health. Multiple scientific studies that have examined the consequences of the Chernobyl disaster have highlighted the importance of non-lethal cancers, increased infant mortality, reduced birth rates, as well as the general deterioration of health conditions and premature ageing caused by the so-called “low” radiation doses.

This work originally published mainly in Russian and Ukrainian are still ignored by the ICRP and Euratom standards, though they have often been translated into English since 2006 and that a summary of over 300 pages was published in 2011 by the Academy of Sciences in New York.

Furthermore, these studies have largely confirmed that assessments of cancer risk caused by “low doses” seriously underestimate this risk, which many studies regarding the impact of nuclear production units had already suggested.

This is all the more worrying as the same applies to genetic effects.

It appears from the review of these facts that not only limit-values are too high, but also more fundamentally, that the current risk model is inaccurate. It appears that in many cases of internal exposure through contamination (ingestion, inhalation), the DNA or critical tissue local dose is much higher than the average absorbed dose, which is the basic parameter to calculate the risk.

Radionuclides discharged by the nuclear industry are clearly involved; these include strontium 90, plutonium 239, tellurium 132 and tritium.

To conclude, I assert that, in the current situation, radiation protection standards do not protect people’s health or that of nuclear workers.

It is unacceptable to reject legally in the environment mutagenic, carcinogenic and reprotoxic substances. We must set up a Zero discharge program based on the precautionary principle.

A disastrous accident such as the one in Chernobyl or in Fukushima is ecologically, politically and humanly unbearable. It is essential to protect ourselves once and for all.



Allain Bougrain-Dubourg

French journalist, producer, radio and TV host, activist for the protection of animals, is the president of the *League for the protection of birds* (LPO), a member of the Economic, Social and Environmental Council and an administrator of the Foundation for Research on Biodiversity.

The destruction of the fauna and flora

Though the issue of the effects of climate change on the man's future has been clearly identified by decision-makers, such is not the case yet for biodiversity.

It is true that the decline of living beings is perceived, but we can't really measure consequences. Why is that? It could very well be that the notion itself of "biodiversity" is complex, multilayers and very diversified, which doesn't render perception easy (are we talking about the oceans? Forests? Micro-organisms? Pandas?)

And it could also be that "animals and plants" are seen as secondary concerns compared to priorities, such as the economy or geopolitics. In this early 21st century, scientific data have however revealed the link between the decline of species and the future of mankind.

In a clear-headed approach, the FAO has launched a project, which reminds us that to develop, agriculture needs to learn how to save, focusing more particularly on how fragile soils are. The conferences of Nagoya, Hyderabad and more recently, Pyeongchang have also demonstrated the need to act. And yet we have obtained no results. Commitments, forever postponed, aimed at checking the decline of living beings, show that the upcoming deadlines should not see the end of the erosion.

Guided by humanists or revolted by odious behaviors, society has little by little acknowledged crimes against humanity. The time has come to condemn crimes against humanity towards living beings, our neighbors on planet Earth, animals and plants that constitute our life-insurance.

Confident in the advances of behavioral science, ethology, the time has also come to consider animals as sensitive beings.



Pr Jean JOUZEL

DSc, researcher with the *French Atomic Energy Commission*, former director of the *Pierre-Simon Laplace Institute*, member of the IPCC (*Intergovernmental Panel on Climate Change*), was a CNRS gold medalist. He is also a member of the Academy of Science and the recipient of the Nobel Peace Prize, as a representative of IPCC.

Climate warming: from a statement of facts to action?

After presenting the main conclusions of the fifth report of the scientific group of the IPCC, Pr Jean Jouzel will examine the consequences of the upcoming warming, more particularly for our country, and the initiatives that have been launched to fight climate warming. He will also broach certain aspects related to international negotiations and the objectives of the Climate 2015 Conference, which France will host next year.

Second Session

Societal drifts and political denial

Moderators : Paul Deheuvels (France) and Jean Huss (Luxemburg)



Pr Paul DEHEUVELS

Professor Emeritus of Statistics at the University Pierre & Marie Curie – Paris VI and a member of the Academy of Science.



Jean HUSS

A teacher by training, a former Member of the Luxemburg parliament and a member of the Parliament Assembly of the European Council, authored a report which was adopted in 2009 by this very same assembly. Founder of the NGO called AKUT, he is also a member of the presidium of the *European Academy of Environmental Medicine* and a member of the ARTAC Board.



Pr Paul DEHEUVELS

Professor Emeritus of Statistics at the University Pierre & Marie Curie – Paris VI and a member of the Academy of Science.

Chemical pollution and health : from Science to Politics

Summary: For 30 years, the number of new cancer cases has been increasing at a yearly rate of approximately 3%. The causes of this pandemics, among which the most likely is pollution by a group of harmful chemicals, known under the generic name of Environmental Endocrine Disruptors [EED], are poorly identified. It is important to act to protect the population from these toxic products, making industrialists legally responsible for the spread of these dangerous substances, and this, without any limitation in time.

According to the National Cancer Institute, the number of new cancer cases in France was estimated at 355,354 in 2012 with 148,378 deaths. From 1980 to 2012, the number almost doubled (+ 107.6% in men, and + 111.4% in women). The WHO (International Agency for Research on Cancer <http://globocan.iarc.fr/ia/World/atlas.html>) countdown provides even higher values (in France, 371,676 new cases in 2012, comprising 211,320 men and 160,356 women).

Here we will focus on hormone-dependent cancers, particularly breast cancer (54,245 new cases / year in France), cancer of the uterus (9,714 new cases / year in France), ovarian cancers (4,592 new cases / year in France), prostate cancer (73,609 new cases / year in France), and testicular cancers (2,332 new cases / year in France). These conditions in France accounted for 144,492 new cases in 2012 (or 38.9% of all cancers), according to WHO. The WHO estimates for 2035 are 490,736 new cancer cases / year, which would set the increase at 1.39% per annum. These figures appear to be underestimated, since they correspond to 32% increase over 23 years. If progress was to be held on the same pace as over the 1980-2012 period, we could expect in 2035 a 79% increase compared to 2012, an increase of 3.44% per year. These figures can be corrected to reflect the evolution of the population. There were 53.7 million people in France in 1980 and 65.8 million in 2012 (an increase of 22.53%). Therefore, in the present state

of things, the annual increase in the incidence of cancer, constant population, should not be less than 2.8%. By integrating the evolution of the population, this increase could greatly exceed 3% per year by 2035, and perhaps beyond that.

What causes such a massive increase? Breast cancer is of particular concern, as it is currently the first cause of female cancer mortality. For men, prostate cancer, which remains the second cause of male cancer mortality, constitutes an equally serious threat.

One of the most likely causes for the proliferation of these cancers is pollution by substances belonging to the group of Environmental Endocrine Disruptors [EED]. To establish this point of view, the study of Brody et al. (2007)¹ highlights the action of Polycyclic Aromatic Hydrocarbons [PAHs], of Poly-chlorinated biphenyls [PCB], as well as dioxins in the onset of cancer, without reaching firm conclusions for other substances. This article is representative of controversy on the subject. From a toxicological point of view, the influence of low doses in the environment is difficult to detect in laboratory animals exposed to short-term experiments. Phenomena of bio-accumulation², and the existence of critical periods when the body is more sensitive to exposure, are also suspected. Bio-accumulation of toxic substances has been repeatedly demonstrated by measuring the storage of Persistent Organic Products [POPs] in fat throughout the food chain. The combined effects of various molecules by synergistic combination are also difficult to identify. Despite the suspicion of the active role in the carcinogenesis of endocrine disruptors in the environment (water, food, drugs, cosmetics, pesticides, and so on), there is only few specific data to confirm the role of these harmful substances. As, however, their long-term harm is obvious, it is important to reduce them as much as possible in the environment, in an attempt to stop a pandemic of cancers that we are currently experiencing progress without any slowdown.

The European Community has adopted a regulation on hazardous chemicals since 2007, and these must be systematically registered. This regulation called REACH (Registration Evaluation Authorization of Chemicals) affects substances of very high concern, such as: carcinogenic, mutagenic or reprotoxic substances (CMR), bio-accumulative and toxic persistent substances (PBTs); very persistent and very bioaccumulative substances (vPvB), and any other substances

¹ Cancer, Vol. 109, 2667-2711 (2007).

² Where harmful substances, present in low quantities in the environment, accumulate slowly in the body up to dangerous levels.

identified as having potentially serious effects on human health and / or the environment. Endocrine disruptors, to which the European Commission grants authorizations based on a simple evaluation file, belong to that category.

By definition, endocrine disruptors [ED] are chemicals that interfere with the human endocrine system and induce harmful effects at very small doses. They typically contradict the “dose-effect” principle according to which the effect of a chemical is always proportional to the dose received. For endocrine disruptors, it is common to observe low dose effects, which disappear at high doses. This contradicts the concept of "No Observed Adverse Effect Level [NOAEL]" in the REACH Regulation³, which defines, for any substance, a limit dose below which there is no detectable adverse effect.

Beset by these specific characteristics of endocrine disruptors, the European Commission has accumulated delays to develop a coherent strategy aimed at identifying endocrine disruptors and protecting the population when they are present in the environment. While the Commission was committed to address this issue before the end of 2013 (in compliance with its "biocides" (518/2012) and "pesticides" (1107/2009) regulations), it has been unable to meet the deadline it had set for itself. The media have highlighted persistent divisions within the Commission (between its Scientific Advisor, Ann Glover, and Environment and Industry head offices). Several industrial companies⁴ have required the Commission to carry out impact studies before implementing any regulation on these substances, which led de facto to a freeze of the file.

Pressures from the chemical industry to freeze research and publications on the harmfulness of substances they produce are on the scale of the profits they generate. These actions of lobbying are highlighted in many books, including F. Nicolino’s most recent book⁵. They make clear the need for long-term toxicological studies on the model of G. Seralini’s studies on GM maize (Genetically Modified Organisms) and pesticides associated with them. The strong reactions that such studies raise highlight the power of industrial lobbies that infiltrate all levels of government and higher levels of research, both public and private.

³ The No Observed Adverse Effect Level is the highest tested dose or exposure level at which there are no statistically significant increases in the frequency or severity of adverse effects between the exposed population and an appropriate control group, some effects may be produced at this level, but they are not considered adverse or precursors of adverse effects.

⁴ We mention here a message on this case from Bayer, which was released.

⁵ Universal poisoning – How chemicals have invaded our planet, Fabrice Nicolino, Editions Les Liens qui Libèrent.

At times, conflicts of interest are revealed, but they remain mostly hidden. Their recurring existence shows that assertions of some large organizations seeking to steer public opinion in order to serve the interests of major lobbies are not trustworthy. For instance, an article in the issue of "Le Monde" dated 14 October 2013 highlighted the extent of links between members of the European Food Safety Authority [EFSA] and the industry, showing that 59 % of the experts employed by the agency were in conflict of interest (among others, due to consulting contracts and funding of laboratories). Thus, 17 of the 20 members of the group "Dietary Products, Nutrition and Allergies" of EFSA totaled more than 100 conflicts of interest!

The action of industrial lobbies is a fundamental phenomenon, which sometimes fools the uninformed public. We could discuss here the historical example of the harmful action of the tobacco industry, as well as the fact that a few decades ago, renowned scientists did not hesitate to compromise themselves by stating that asbestos was safe. One expert's opinion can always be contradicted by another expert, but behind one or the other, manufacturers are hidden and derive their profits from the spread of hazardous substances. What is really outrageous is that they can do this without any actual risk, as they hide behind their official authorizations granted by public bodies. When the same organizations are infiltrated by experts in conflicts of interest, the situation is totally unacceptable. We should then return to simple ideas such "polluter pays" and extend the civil and criminal liability of industries over a long enough period of time to take into account the timespan between the contamination of the victims and the development of diseases they develop as a result of their toxicity.

Coming back to the case of cancer, we must bear in mind that only one patient in two is cured, and that the average cost of a single treatment is around € 50,000. Corporate profits that have discharged carcinogenic toxic substances in the environment must be compared to the huge expenses implemented by our society in trying to save their victims to the point of threatening the financing balance of social protection as a whole.

Hopefully one day we will come when those responsible for environmental crimes and their accomplices may be brought before a criminal court. This is incumbent on the law, and requires a strong political determination, which seems to have been hitherto lacking, both in France and within European institutions. Hopefully, the new European Commission will address this issue without further delay.



Pr Lennart HARDELL

Professor in medical oncology and cancer epidemiology at the University Hospital of Örebro (Sweden). His research work has focused on cancer risks related to exposure to pesticides and pollutants and over the recent years, the link between the use of cell phones and the risk for brain tumors.

Corporate ties that bind: the manipulation by vested interests

I presented back in 1977 the world's first cases of soft-tissue sarcoma among forestry workers who had sprayed with Hormoslyr®, which contained the same phenoxyacetic acids as in Agent Orange. The scientific report was immediately attacked in a Swedish newspaper article with the headline 'The wolf is coming'. This was the beginning of a series of such attacks on myself and others who stated the case on cancer risks that are in conflict with powerful economic interests. In this presentation further such examples are drawn on, often given by academics without disclosed conflicts of interest.

In Australia, an intense debate about health problems among returning Vietnam veterans resulted in the establishment in 1983, of a Royal Commission to investigate the issue. The commission presented its report in 1985, concluding that Agent Orange did not cause any health problems. However, it was revealed that the Monsanto report written for their defence contained manipulated and misinterpreted data from our and other published studies.

Monsanto was then one of the largest manufactures of phenoxyacetic acids, but here also represented other companies. The commission did not acknowledge in its final report that the Monsanto submission had been used in their concluding report, this fact was revealed only after comparing the documents. The Commission's views, as provided by Monsanto's counsel, were supported by Professor Richard Doll in unsupported and clear terms in a letter to the Commissioner, Justice Evatt:

[Dr. Hardell's] conclusions cannot be sustained and in my opinion, his work should no longer be cited as scientific evidence. It is clear, too, from your review of the published evidence relating to 2,4-D and 2,4,5-T (the phenoxy herbicides in question) that there is no reason to suppose that they are carcinogenic in laboratory animals and that even TCDD (dioxin), which has been postulated to be a dangerous contaminant of the herbicides, is at the most, only weakly and inconsistently carcinogenic in animal experiments.

It was at that time both surprising and unclear why the well-known epidemiologist Professor Doll had interceded on behalf of Monsanto to promote and support a report with almost verbatim enclosure of industry

manipulated scientific data. It was only later after considerable research, that it was exposed by the investigating writer, Martin J Walker, that Doll was secretly hired by and in the pay of Monsanto for a fee of \$1000 US per day during his interventions. He did not disclose that fact himself but certainly if known, it would have cast a shadow on his conclusions. TCDD was in 1997 classified as a human carcinogen, Group I, by IARC.

In the fall of 2001 a group of Swedish scientists at the Karolinska Institute, Hans-Olov Adami, Anders Ekblom, Magnus Ingelman-Sundberg, Anders Ahlbom and one researcher in Lund, Lars Hagmar, initiated an attack in a leading Swedish daily newspaper on researchers, including myself, who had been reporting on the association between cancer and exposure to various toxic and physical agents. These *ad hoc* unsupported comments in a popular newspaper on a number of studies of environmental carcinogens, including our studies on pesticides, completely lacked academic cogency.

Also in 2001 one of the authors, Professor Hans-Olov Adami, together with Jack Mandel, an epidemiologist working for the U.S. consultancy firm *Exponent, Inc.* and Dimitrios Trichopoulos, Professor Emeritus of Epidemiology at Harvard, went to the Dioxin conference in South Korea and gave oral presentations. Their presentations argued that dioxins are not associated with cancer in humans.

Although no new research was presented, statements casting doubt on carcinogenicity were made. While Mandel appeared as an employee of *Exponent*, Adami and Trichopoulos only quoted their academic affiliations, which would infer that they were *independent* researchers rather than consultants hired by *Exponent* and paid by *Exponent's* clients.

Hans-Olov Adami's employment at the Karolinska Institute was supported by large grants from the Swedish Cancer Fund. The aim was *to make research on different risk factors and improve the possibilities to prevent cancer*. However, it seems as if Adami, along with a number of colleagues, has over the years actually been creating doubt on cancer risks from pesticides, mobile phones etc.

Mobile telephone use and the brain tumour risk is another contemporary issue where vested interests undermine scientific conclusions that would lead to use of the precautionary principle. One of the authors, Anders Ahlbom, of the seemingly independent Interphone studies, stated even before the study started, that an asserted association between mobile telephones and brain tumours was 'biologically bizarre'.

In May 2011 IARC evaluated the carcinogenic potential of radiofrequency electromagnetic fields with the conclusion to be 'possible human carcinogen', Group 2B. The aforementioned Anders Ahlbom at Karolinska Institute was selected by IARC to be the chair of the epidemiology group. A

few days before the meeting it was revealed by a Swedish journalist, Mona Nilsson, that Ahlbom was on the board of his brother's consulting firm that addressed its services in particular to the telecom industry, a fact that he had not reported in any conflicts of interest declaration. Furthermore Nilsson showed that Ahlbom's brother had longstanding ties to the mobile phone industry and actually worked as a lobbyist for many years at Telia's office in Brussels. Ahlbom was forced to leave the expert group. Such ties and substantial financial funding from industry may explain Ahlbom's as well as some other experts' activities over the years to undermine the carcinogenic effect by use of wireless phones.

These issues of conflicting and vested interests and ties to corporate industry will be discussed in my presentation, see also the State Award winning documentary 'Mobilize'.



Pr Gilles-Eric SERALINI

Professor of Molecular Biology. He has worked more specifically on GMOs. A researcher at the Institute of Fundamental and Applied Biology of the University of Caen, he co-chairs the *Risk, Quality and sustainable Environment Unit* at the “Maison de la recherche en sciences humaines”, which has a partnership with CNRS.

GMOs: Conflicts of interest and scientific controversies

Mesnage, R., Defarge, N., Spiroux, J., Séralini, G.-E. (2014) Major pesticides are more toxic to human cells than their declared active principles. BioMed Research Int. DOI:10.1155/2014/179691

In this study published by Professor Séralini’s team, it is shown that eight out of ten formulations of pesticides tested are 1,000 times more toxic to human cells than their active principles. The products tested were three herbicides (glyphosate, isoproturon, fluoxypyr), three insecticides (imidaclopride, acetamipride, pyrimicarbe), and three fungicides (tebuconazole, époxiconazole, and prochloraz). These were the only ones tested for the study on the long-term effects on health, neglecting toxic additives in formulations. Toxicity observed in vitro on three types of human cells (embryonic, placental and hepatic) reveals the real effect of mixtures (complete formula) with their additives considered inert up to then and often kept a secret.

Séralini, G.E., Clair, E., Mesnage, R., Gress, S., Defarge, N., Malatesta, M. Hennequin, D. Spiroux de Vendômois, J. (2014) Republished study: Long-term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize. Environ. Sci. Eu. 26:14-31.

In publishing again their study with new online data, Professor Séralini’s team confirms that the pesticide the most sold worldwide, Roundup, causes at low environmental levels severe hepatorenal deficiencies and hormone disruptions, such as breast tumors. Similar effects have been observed during the chronic consumption of a balanced diet based on Roundup-tolerant GMO corn. This is due to the residues of Roundup and the specific genetic engineering of that corn. The formulations of Roundup, as well as Roundup-tolerant GMOs should therefore be considered as endocrine disruptors and their assessment should be reviewed by health authorities.



Dr Josiane PELAGE

Pediatrician, is the President of the *Medical Association for the Safeguard of the Environment and Health (AMSES)* in Martinique and the Vice-President of the Martinique Medical Board.

Pesticides and health: the case of the French West Indies

Actions aimed at fighting environmental pollution in its impacts on health led by the Medical Association of Environment and Health Preservation (AMSES-Martinique) should be the obvious solution faced with health indicators as worrying as significant prematurity, infertility, the increase in hormone-dependent of children cancers, or the serious disruptions in cognitive development of children related to chronic chlordecon intoxication.

The response of authorities to these warnings over the last thirty years, whether from decentralized State services, and from individuals or NGOs, has not come up to societal, economic and health efficient political measures.

This feeling shared by a great number of citizens is closely akin to the conclusions of the French “Conseil d’Etat” published in June 2014. Efforts to protect populations and the means deployed have fallen short of the seriousness of the situation.

In Martinique, powerful lobbies, settled for ages on farmlands, heavily act upon elected representatives from all parties and populations, raising the specter of job losses in the primary sector.

In spite of the biased action of its critics, AMSES has gained genuine recognition among the general public and administrative authorities, thanks to the reliability of its expertise. However, it is also aware that it must pursue and reinforce its didactic effort.

Awareness is growing little by little and major advances have taken place, as:

- The significant financial aid of the Regional Agency for Health to train physicians to environmental health in 2013;
- The scheduling of research regarding prematurity in Martinique et INSERM Guadeloupe research on chlordecon;
- The French Labor Agency’s appeal for the AMSES’s expertise as regards issues related to farm hands’ occupational safety.

	<p>We owe this slight awakening of the State to the speech of only one of our Parliament Members, to the public statement of the President of ARTAC and to actions, in particular judicial actions, of our local organizations to neutralize exemptions in favor of aerial spraying taken by a “Préfet” under influence.</p> <p>Spreading our fight to Europe and the world on this new Paris Appeal Colloquium, which has brought us together today, is a great opportunity to which AMSES is determined to contribute through a motion adopted on October 23, 2014 by its Board. See the AMSES motion in annex 3.</p>
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Pr Louise VANDELAC

Sociologist, researcher at the Center for the Study of biological interactions in human health (CINBIOSE), is a full professor at the *Institute of Environmental Sciences of the University of Quebec (Montreal)* and an associate professor at the social and preventive medicine department of the University of Montreal.

The public health policy in Canada

Faced with the threat, by chemical carcinogens and mutagens as well as reproductive toxins, to the health of children and future generations, « l'Appel de Paris » generated a large and diverse movement which contributed, in 2004, to the prohibition of their use. It also helped in setting up requirements for a strict application of the precautionary principle as well as a strengthening of the REACH regulation and certain international standards. These are all valuable gains, as are the European project for the mandatory declaration of nanotechnologies and the recent commitments by Europe for the reduction of their greenhouse gas emissions. These advances are especially relevant in contrast with some recent evolutions of the North American context. As an example, mid-term american elections seem to suggest a possible increase in the exploitation of shale gas and indirectly of the highly polluting Canadian oil sands from Alberta by facilitating export streams, when the expansion of Alberta's Tar sands exploitation already threaten hopes for a climate change agreement. Since the 1970s, Canada played a pioneering role in terms of comprehensive and integrated approaches to health and environmental issues, having linked social and environmental factors, as does the EcoHealth approach. However recent cuts in Canadian environmental sciences programs, have contributed in tarnishing this country's image.

In Quebec, the health care structures reorganization project, coupled with 30% budget cuts for public health departments and the postponement of a prevention policy, raise some concerns.

Nevertheless, in the face of this intertwined triple crisis of climate, biodiversity and vital resources which, in conjunction, seemingly multiply and intensify the impacts of extreme events, silence is not a viable option. Nor can we ignore the effects of chemical pollution that contributes to the "epidemic of chronic diseases" (Cicollella, 2013) and most likely impact health care systems, the costs of which sometimes rise to the point of totalling 40% of State budgets. In the same line of thought, it would be unwise to underestimate the risks of NBIC, (nanotechnology, biotechnology, information technology and neurosciences) ubiquitous in our lives, often without our knowledge.

Renewing analytical frameworks is important in order to understand these complex issues, to adopt early and comprehensive intervention

strategies and allow for integrated interventions, coherent with assessment and regulatory frameworks, which could in turn reduce health impacts and costs.

We should be delighted that this symposium aims to provide an update on chemical pollution, the extension of the analytical framework to electromagnetic pollution, and hopefully to NBICs, as well as the recognition of pollution as a crime against Humanity. In 2004, l'Appel de Paris emphasized "states to require any public or private person to take responsibility for the effects of its actions or its failure to act," or mandate an international authority to do so, while insisting on "the obligation for States to implement strong measures to reduce greenhouse gas emissions." To create a European Criminal Court of the Environment and Health, with the ultimate goal to create an International Criminal Court of the Environment and Health, as proposed by the Charter of Brussels, would be a bold step in that direction.

Finally, the magnitude of the ecological crisis compounded to the potential health impacts of some technoscientific innovations, should encourage the creation of a high-level international interdisciplinary and intersectorial program for a new global and integrated approach to face major Global Health challenges. Future Earth, a 10-year international and collaborative research program network for sustainable development, which has established two of his five global hubs in Paris and Montreal could be a great inspiration for the creation of « Future Health »...

Roundtable: which environment and health Policy



Aline ARCHIMBAUD

A French senator, an environment activist and the founder of the first networks of alternative and solidarity economy from 1985. A former teacher and European Member of Parliament, she also launched one of the first environmental residential areas.

page 57



Hiltrud BREYER

Is a German politician and former Member of the European Parliament with the German Green Party, part of the European Greens and sits on the European Parliament's Committee on Women's Rights and Gender Equality and its Committee on the Environment, Public Health and Food Safety.

She is a substitute for the Committee on Legal Affairs, substitute for the Delegation to the EU-Romania Joint Parliamentary Committee.

Page 58



Gert Peter BRUCH

A Journalist, a photographer, an author and a documentary maker, he is committed to protecting the amazon rain forest. He is the President of the Planète Amazone Association which supports native tribes, especially in Amazonia, in their international struggle against deforestation.

Page 59



Marie-Christine DEWOLF

A Public Health engineer, a project leader within the Public Health and Health Watch Department of Hainaut in Belgium, she is also the Vice-President of the Health and Environment Alliance (HEAL) Europe network.

Page 61



François GROSDIDIER

A French Senator and Mayor and a former Member of the French Parliament and « Conseiller général ». He is the president of « Valeur Ecologie », a think tank whose action is among others to preserve the environment. He is committed to an environmental and ecological, dynamic and practical policy. His town of Woippy in Moselle is a proof to this. Founder of the Yearly Festival of ecology, he is also the ambassador of the French Beekeeping National Union.

Page 63



Chantal JOUANNO

A former president of the Agency of the Environment and Energy control, was appointed State Secretary in charge of Ecology and then minister of Sports. A senator of the city of Paris, she is also a regional counselor. She founded in March 2013, Ecolo Ethik, a think tank for environmental innovation.

Page 64



François VEILLERETTE

A teacher by training, was a deputy director of an EREA (“Etablissement Régional d’Enseignement Adapté”). President of Greenpeace France from 2003 to 2006, he is currently the spokesman for Future Generations, which he co-founded, and the administrator of the European network Pesticide Action Network (PAN Europe).

Page 66



Aline ARCHIMBAUD

A French senator, an environment activist and the founder of the first networks of alternative and solidarity economy from 1985. A former teacher and European Member of Parliament, she also launched one of the first environmental residential areas.

Elected a Senator September 2011, Aline Archimbaud has made health a priority of her mandate. Preventive rather than curative actions, aerial spraying of pesticides, electromagnetic fields, aluminum-adjuvants in most vaccines, health consequences of chlordecone in the Caribbean islands, fight against conflicts of interests in the pharmaceutical industry, health consequences of nuclear tests, etc: the fights she has been leading on environmental health issues are unfortunately numerous. So as the tireless lobbying strategies to slow progress in this field.

At the moment, she is particularly active on the issue of diesel, she filed a bill related to this subject in May.

Aline Archimbaud also chairs the "Asbestos Monitoring Committee", established in September 2013 in the Senate which conducted numerous hearings throughout the year and reported its findings on July 2, 2014. The asbestos is a major health catastrophe because of the lobbies pressure; it was banned very late in France in 1997, 20 years after it was officially declared as a carcinogen. The authorities estimate that there will be 100,000 asbestos victims by 2030. 200 000 tons of asbestos remain today in public and private buildings. Implementing a national strategy for asbestos withdrawal is therefore essential. Another worrying statement is that in spite of significant regulatory developments in 2011 and 2012 for workers and population protection, these remain very poorly enforced due to a lack of national control and because of the dramatic lack of means of control authorities. This report is available electronically on the website of the Senate.



Hiltrud BREYER

Is a German politician and former Member of the European Parliament with the German Green Party, part of the European Greens and sits on the European Parliament's Committee on Women's Rights and Gender Equality and its Committee on the Environment, Public Health and Food Safety.

She is a substitute for the Committee on Legal Affairs, substitute for the Delegation to the EU-Romania Joint Parliamentary Committee.



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A Journalist, a photographer, an author and a documentary maker, he is committed to protecting the amazon rain forest. He is the President of the *Planète Amazone Association* which supports native tribes, especially in Amazonia, in their international struggle against deforestation.

Native people, also known as indigenous people or first nations or aborigines, are distributed in over 5,000 different groups in about 90 countries across the world. They represent approximately 370 million individuals, or just over 5% of the world population. According to UNO, these populations are among the most underprivileged and vulnerable.

The major part of these so called native people has been exterminated or assimilated. With them, irreplaceable habitats have disappeared, along with the endemic biodiversity they sheltered. International authorities are finally starting to understand that destroying them means destroying the last natural sanctuaries on Earth, which they protect by their presence, their lifestyle and their nature-friendly knowledge.

So awareness is on its way; however, unfortunately, this awakening coincides with a frenetic exploitation of natural resources. All over the world, the last natural habitats, vital organs of the planet's climate, and native people who live there are still being sacrificed to holy development. This term is the key to a strategy derived from this neoliberal globalization that has become the predominant societal model among the world's economic powers.

This model is supposed to benefit everybody, and yet everyone knows now that its sole purpose is to make a minority richer, to render even more powerful those who are already powerful. Politicians promote it and heads of companies, multinational corporations or state monopoly implement it, but it is becoming more and more difficult to distinguish one from the other. Makes sense! They're often the same ones!

These puppeteers who handle the art of propaganda to perfection are warlords and this war is economic. In terms of collateral damages caused, there's nothing to choose between economic war and armed conflicts.

I have just come back from a trip to Cacique Raoni, Chief of the Kayapo people. He managed to delimit a vast territory for his people in the late 1980's with the help of Sting. All around, there is nothing left. Soya planters, breeders, are putting more pressure. They burn crops and the

smoke is choking villages. Chemical fertilizers used are poured upstream in the Xingu River and render its water unfit for human consumption. The local climate is completely disrupted. Days are stifling and nights are cold. It feels like the Sahara Desert. Further up north, gold diggers have started eating away at ancestral land and contaminating them.

This is what the most fortunate native people in Brazil is experiencing!

Ecuador, another Amazonian country, was the location of the worst oil spill in the world, so much so that it has been called the “Amazonian Chernobyl”. From 1964 to 1992, the multinational oil company Texaco (bought by Chevron in 2002) built and exploited oil in the Northern region of Equatorial Amazonia, 1,500,000 hectares of rain forest where dozens of native communities lived. The quantity of oil and wastes discharged in the equatorial environment is 30 times higher than the quantity spilt during the disaster caused by the oil tanker Exxon Valdez on the shores of Alaska.

Today, these communities are still suffering from the consequences of pollution that have affected their health. Cancer rate has soared in the region. There are fertility problems and the birth rate has decreased. Some communities have had to leave their traditional lands.

Today, industrial or energy projects approved by governments have become weapons of mass destruction. It is a war indeed, and native people have, in Brazil or elsewhere, no effective weapon to defend themselves. Neither does Nature. And yet, both are vital. Native people are not man’s past. They are the sentinels of the future. Nobody should have the power to approve a decision involving the potential disappearance of their cultures, languages, spiritualities and secular medicines, without having to answer for this to mankind as a whole.



Marie-Christine DEWOLF

A Public Health engineer, a project leader within the Public Health and Health Watch Department of Hainaut in Belgium, she is also the Vice-President of the Health and Environment Alliance (HEAL) Europe network.

According to WHO country profiles, the environmental burden of diseases per year would account for 14 % to > 30 % of total burden, which can generate large economic costs and undermine societal development.

From a global and holistic approach to target actions in a coherent way

Great opportunities for progress lie on a global and holistic approach (integrating production and consumption patterns, climate change, biodiversity, energy, agricultural and urban management, chemicals, health care systems management...) with target actions (in the different fields) in a coherent way. Sustainable development could be seen as a triangular pyramid where each corner influences the whole shape (environment, social, economic and health) so that if decision making focuses on only one single corner it will be at some other corner's expenses. The development of accounting systems beyond economic and financial capital considerations (to incorporate the human and natural capital impacts of the activities) or of human development indicators which incorporate other dimensions of wellbeing besides income could drive to more sustainable behaviors, efficient actions, improved environment and therefore reduce burden of related environmental diseases.

Building new science and strengthening the messages addressed to policy and decision makers

Opportunities for progress also lie in building new science based on "new" scientific paradigms such as the "timing makes the poison", "some contaminants can alter gene behavior at extremely low doses, potentially also of the next generation(s)" or "experiments and effects at high doses don't predict effects at low doses". Yet there is still a need to train professionals (including health care professionals) and all stakeholders in the field of health and environment and its "new" paradigms. There is also a need to highlight to all actors, including professionals and civil society, the lessons to learn, the lessons we

haven't learned in the past and the cost and effects of inaction. Economic motives (particularly for the present time) often drive business or political decision making far away from social, environmental or health considerations. We have to stay vigilant in order to keep on track to at least guarantee what we already acquired and gain more successes.

In order to strengthen the messages addressed to policy and decision makers, interdisciplinary collaboration should benefit from support at all political levels. Strengthened messages are necessary to acknowledge emerging issues, face doubts manufacturers and translate early warnings into actions. To guarantee credibility and ethics it is also important to ensure the independence and protection of researchers and researches, including researches aiming at tackling environmental related chronic diseases and at protecting the most vulnerable ones.



François GROSDIDIER

A French Senator and Mayor and a former Member of the French Parliament and « Conseiller général ». He is the president of « Valeur Ecologie », a think tank whose action is among others to preserve the environment. He is committed to an environmental and ecological, dynamic and practical policy. His town of Woippy in Moselle is a proof to this. Founder of the Yearly Festival of ecology, he is also the ambassador of the French Beekeeping National Union.

At the end of the 90's, ecology was a priority for the French people. Today, affected by economic concerns, it is no longer deemed as urgent. The first major realizations during International Summits have given way to fatalism and carelessness.

The actual cost of global warming is a time bomb for Western countries and for African countries both from the viewpoint of populations' health and that of biodiversity.

In Europe, as anywhere else, human health must come first, hence the need to make the precautionary principle more effective. Short-term budgetary urgency itself should create no long-term harm.

Political measures as a whole should combine both moral and rational or economic commitments, with a mid- and long-term view.



Chantal JOUANNO

A former president of the Agency of the Environment and Energy control, was appointed State Secretary in charge of Ecology and then minister of Sports. A senator of the city of Paris, she is also a regional counselor. She founded in March 2013, *Ecolo Ethik*, a think tank for environmental innovation.

Ten years ago, the Paris Appeal defined three simple and funding principles: the impact of the environment on health, children as a priority and the widespread consequences of our inaction. Ten years later, the statement of facts is overwhelming. Scientific proofs are more and more numerous. Very few actions, except for bisphenol A, have been successful. But this success conceals inaction and recurrent challenging. Though the relation between health and the environment is acknowledged, the full of extent of it is questioned.

And yet, we can only acknowledge the dead-end that our health systems have reached. Our life expectancy in good health is declining. A woman born in 2013 will live 22 years of her life with disabilities. The prevalence of chronic diseases, such as diabetes, obesity, cardiovascular diseases and neuro-degenerative diseases keeps growing. Our health system is going bankrupt. But we keep treating bodies rather than reinforcing them. Our health system focuses on that conception of care rather than on prevention, as we have conceived funding based on diseases rather than good health.

Indeed, public health remains a ministerial item of language. Beyond taxes on tobacco and alcohol, commitments are only recommendations. The National Plan for environment and health with a 490-million-Euro budget over 5 years is laughable compared to the 175 billion in healthcare expenses. The importance of diet and physical exercise is limited to mediocre awareness campaigns. Being a vegetarian and an athlete, being careful with chemicals and harmful waves is seen at best as a joke and more generally considered with disdain.

More seriously even, our public system generates a policy of active majority to the detriment of the minority to come, i.e. our children. We are the second generation who chooses its immediate comfort against the future of its children. We will pass on a huge public debt, a polluted environment, exhausted resources, depleted biodiversity. We are the

first generation to expose all its children to the same products, to the same sources of pollution. Endocrine disruptors, phytosanitary products, waves, and so on, for the very first time in the history of mankind, all our children are faced with these. If a tragedy happens, it will be colossal. The issue here is not about precaution, but intelligence.

What we need are not reforms, transitions, but awareness faced with radical truths. We have to decide to rethink the indicator of our public policies: GDP. We have to reconsider health as a whole and mankind as a whole.



François VEILLERETTE

A teacher by training, was a deputy director of an EREA (“Etablissement Régional d’Enseignement Adapté”). President of Greenpeace France from 2003 to 2006, he is currently the spokesman for Future Generations, which he co-founded, and the administrator of the European network *Pesticide Action Network (PAN Europe)*.

For Générations Futures and the Pesticide Action Network Europe, of which GF is the French branch, we must face reality: our Western societies are facing an epidemic of chronic diseases. Research now shows us that poorly or non evaluated technologies contribute significantly to this epidemic. The first problem is then how these technologies will be evaluated and approved or not in the future. For civil society, and our NGO, the answer is clear: we must favor the general interest in the assessment / authorization process by applying an approach based on precaution. But today there are still many gaps to be addressed in this field: nanomaterials placed on the market without any assessment, chemicals still little affected by any evaluation process in the context of REACH, tests on pesticides not taking account the chronic risks, attempts to circumvent obligations on endocrine disruptors in the context of UE legislation on pesticides ... the second key point lies in the way the European Union and member states will put at the heart of their health policies an approach to chronic disease prevention through a global action on the environment. In this regard, they absolutely must get out of an approach based almost exclusively on care but also implement a voluntary action of primary environmental prevention at the very heart of their health policies.

Third Session

Science to support Justice and Criminal Justice to rescue Humanity

Moderators : Laurent Neyret and Etienne Riondet (France)



Etienne RIONDET

A lawyer at the Paris bar, he has published numerous legal books. He has a monthly column in the magazine Capital.



Laurent NEYRET

A jurist specialized in Environmental and public health law, is an expert to *Commission of Law and Environmental policies* of the French Committee of the International Union for Conservation of Nature. He is a University Professor of Private Law of the University of Versailles Saint Quentin, after teaching at the University of Artois.



Etienne RIONDET

Lawyer in Paris, his agency works more particularly in the field of the right to public health. He has been a member of the Board of the ARTAC for over ten years.

The statement of facts is sadly simple: the degradation of the environment and its impacts on health has reached a critical and irreversible level. This critical level affects, in different ways, all the countries in the world.

This must, on the one hand, lead civil society to think things out and to new behaviors and, on the other hand, lead States to amend international law in depth and to adapt to new scientific requirements.

Judicial tools, notably in terms of prevention and precaution, must be more fitted to needs.

The purpose is to make those who have seriously damaged environment and health, and consequently more seriously future generations, aware of their responsibilities.

Amendments to the Paris Appeal dealing with this aspect should be drawn up.

The first step that could be done is to set up a strategic international and multidisciplinary technical working group to precise how to weight upon the international authorities and state members to adapt the law to the new public health data worldwide and thus to amend the present law.



Laurent NEYRET

A jurist specialized in Environmental and public health law, is an expert to *Commission of Law and Environmental policies* of the French Committee of the International Union for Conservation of Nature. He is a University Professor of Private Law of the University of Versailles Saint Quentin, after teaching at the University of Artois.

If there is an urgent need for criminal law to rescue humanity, it is because the severity of the impact of human action has changed. In terms of space, the threat has become cross-border as evidenced by the global consequences of chemical risk or air pollution associated risk. In terms of time, the man created risks extend to future generations. Yet, the extension of man power should come along with an extension of his duties.

It remains to be seen whether the creation of a new international crime that would take the form of a crime against the survival of humanity is possible by expanding the category of the most severe crimes that fall under the International Criminal Court and that threaten the world "peace, security and well-being"? Such an evolution of international law has several prerequisites.

First, the international community must show its reprobation to acts affecting severely the survival of humanity, through statements or agreements signed by the greatest possible numbers of states. Second, states should agree on the ones subject to criminal prosecution. In other words, who are the criminals who should be brought to trial by an international criminal court? In the state of international law, only individuals, excluding transnational corporations can be sued in such jurisdictions. Finally, a supranational crime against the survival of humanity should be confined to the most severe violations of health and environmental international law, involving notably the knowledge of the high probability of harming humanity and future generations.

Anyway, even though criminal law is a possible solution for the protection of humanity against the most serious chemical hazards, it is certainly not the only one. Indeed, it should be exceptional and associated with a civil and administrative-type response, requiring from any private or public person which causes or threatens to cause severe, widespread and lasting damage to the environment and to humanity, to avoid, reduce or compensate the damage, if only by anticipation, by contributing to a global fund.



Valérie CABANES

A legal expert in International Law, specialized in human rights. She is the spokeswoman for the grass root movement called *End Ecocide*.

At a time when the human predation on the environment has never been more intense, a global movement has been launched so as to gain recognition in international laws for the crime of ecocide as a crime against peace. This is an essential and urgent legal means to sanction attacks of big companies on the environment.

Crimes against nature are crimes against peace and humanity

En 2010, British lawyer Polly Higgins proposed that the crime of ecocide be recognized. She suggested to the International Law Commission of the United Nations that the crime of ecocide become the fifth crime against peace, alongside the crimes against humanity or war crimes. In the process, two years ago, seven European citizens launched a "European Citizens' Initiative" (ICE) (1) whose purpose was to gain recognition for the crime of ecocide in Europe through a European directive. Since January 2014, following the ICE, the End Ecocide movement has globalized, claiming the implementation of an international environmental and health justice.

A new legal concept reflecting a disturbing reality

The term "ecocide" originates from the prefix "eco" – home, habitat (from the Greek *oikos*) - and the suffix "cide" - Kill (*caedo* in Latin). Ecocide is defined as severe and extensive damage to one or more ecosystems or their destruction, which can affect several generations. An ecocide can be part of attacks to the fundamental right to life, the human right to a healthy environment, the rights of indigenous peoples to live according to their ancestral traditions, the rights of future generations. The term Ecocide before the ICE was mostly unknown to the general public in France, even if the concept of crime of ecocide has been debated for more than forty years in the International Law Commission, as a war crime after the use of agent Orange in Vietnam in the context of armed conflict and as an intentional behavior with particularly serious effects. It has then been discussed in times of peace to qualify unusual environmental disasters committed intentionally or out of carelessness, known to lawyers as ecocide or biocide. This commission was in charge of preparing the Code of Crimes against Peace and Safety of Mankind, the ancestor of the Rome Statute on Crimes against Peace adopted in 2002. We were the ones to update and reopen an old legal debate that big polluting States have never felt a party to.

Polluters acting with complete impunity

We are asking indeed that the value of ecosystems in maintaining life on Earth, highlighted by science, but totally ignored in the economic and political sphere, be recognized. The law would clearly remind everybody of this: we live in a finite world where all forms of life, including humans, is

interconnected and interdependent and the era of the Anthropocene (2), which modern man has caused over the last two hundred years, is a form of collective suicide. The world is facing a huge threat to its peace and safety, as the world's ecosystems are being destroyed at an unprecedented speed and scale. We are depleting our natural resources, and resource scarcity, such as drinking water, food, rare metals, oil and other natural resources, leads to a greater number of conflicts (3) around the world and climate migration.

Compensating for a legal gap

Our current legal framework does not have the tools required to put an end to widespread ecosystem degradation caused by dangerous industrial activity. How can we accept the weak sanctions in the Probo Koala case, in which Trafigura was fined one million euros, compared to an annual turnover of \$ 73 billion, and not for waste trafficking, but for breach of its duty to disclose the type of toxic waste transported? Similarly, would it not be better to control some company chairs/CEOs, such as the CEO of Tepco who is responsible for the decision to build a ten-meter protective wall around the Fukushima reactor instead of the thirteen meters recommended and this, for reasons of budget savings?

Lifting the impunity of multinational executives, governments, partner institutions concerning certain environmental disasters related to the use of dangerous or predatory technology today seems an urgent necessity. Therefore, the links between human rights and the environmental law must be inherently recognized in the international criminal law. This has already happened in many international conventions, since the Stockholm Declaration in 1972, as positive but non-binding rights. The next step, as a priority, is to recognize the destruction of ecosystems as a crime and to establish criminal courts to try these cases.

The need for international environmental and global health justice

We have thus launched a joint appeal on January 30, 2014, at the European Parliament for the creation of an international environmental and health criminal justice. A charter was drafted with nine other organizations and this charter can be signed by any organization in the world, as well as an online citizen petition iecc-tpie.org or on our website www.endecocide.org. Over 90 organizations have already joined us and tens of thousands of citizens support it. The petition will be delivered to Ban Ki-Moon during the Climate Summit in December 2015 in Paris (COP21). This charter ultimately demands the recognition of environmental crime in the Statute of the International Criminal Court. In order to progress in its implementation, we are bringing together at this time experts in international law and environmental law to prepare an amendment to the statute so that it can be supported by one or more States to the Assembly of signatory states and up for vote. With only one State willing to support this amendment, it can become part of the agenda and 81 States voting in favor of it are required to be approved. We are currently conducting diplomatic discussions to convince states such as Ecuador involved in a lawsuit against Chevron Texaco, or island states affected by climate change, to take hold of our proposal.

All the legal bases have been set - what we need now is political determination and widespread grassroots support.



Emilie GAILLARD

Lecturer in private law of the University of Caen. His thesis called *Future generations and private law. Towards a right for future generations* received an award by the Academy of Moral and Political Sciences (2010).

Can the criminal justice system come to the rescue of Humanity?

Our civilization is experiencing a genuine shift in the way people think out and set out the law as regards future generations. For years, it has been quite unnecessary to think of them as humanistic and scientific assumptions allowed people to believe that the future was resolutely open. It has now become essential to question the position of the protection of humanity within the law. Indeed, the human race has entered a new era where it realizes its unprecedented vulnerability. Chemical and radioactive pollution, systemic and diffuse pollution chains, cocktail effects, hybridization of species... The future is now submitted to various influences. When resilience is no longer possible, when there is no backtracking, one can suppose that it is the very concept of human rights that ultimately falls into disuse.

What are today the answers provided by the criminal law? Since the adoption of law 2004-800 of 6 August 2004, the Criminal Code has a new category of offense, distinct from that of crime against humanity, namely: "crime against the human race". It punishes violations of the new founding prohibitions, such as crimes of reproductive human cloning, eugenics and germline gene therapy. One can also identify, through the rise of a repressive prescriptive environmental law, the progression of new protection methods for the future, including through that of the environment and of non-human life. This thought is just as true at the transnational level: any legal protection for the future, whether it is the future human situation or the environment, is ultimately part of the recognition of a true right to the future. In addition to this, the development of new legal arguments moves alongside the transfer of the legal aspects to a renewed protection of mankind. As an illustration, the precautionary principle (poorly named and poorly understood) is a powerful legal principle of anticipation: it promotes a new attitude of responsibility, being aware of the possibility to harm both public and environmental health, and even the future of

the human race. However, its translation in the criminal field should remain extremely measured.

Prospectively, one could consider a principle of integrity of the human race. It would give coherence to a set of rules aimed at protecting future generations. It is noticeable in the increase of a new type of damages, impacting both the environment and future generations, both a person (cloning) and a civilization founding prohibition. In other words, the concept of integrity of the human race would make it possible to strengthen in words a quest for ontological and humanistic protection, which directly concern future generations. A criminal law of the future could also go with a dynamic currently at work, which aims at establishing human rights for future generations. Far from being a conceptual misunderstanding, we should review our legal concepts and principles to establish and implement a right to a sustainable human health. If the criminal law of the future remains to be built, it is interesting to note that the law of the future (outside the criminal aspect alone) is already well under way precisely because we don't want to block any horizons of the future.



Pr Antonino ABRAMI

President of SEJF (Supranational Environmental Justice Foundation), he is Professor Emeritus of the postgraduate program in Economics and Techniques for the Conservation of the Architectural and Environmental Heritage at University of Nova Gorica (Slovenia). Former Judge of the Supreme Court of Cassation and Appeal Court judge of Venice Jean Monnet Chair (University of Urbino – Italia) in community environmental law. Author of the “History, Science and Community Environmental Law “.

- 2001, unesco broadened the notion of sustainable development: "cultural diversity is as necessary for humankind as biodiversity is for nature (...)".
- the different meanings of sustainability: economy, ecology, equity
- aspects that concern sustainability: solidarity, precaution and responsibility
- intellectual circles and judges on the issue of responsibility in the late eighties': "numerous disasters for which nobody was charged", whereas half of the planet's natural resources have been destroyed by man.
- pollution has no boundaries.
- the current judicial system is inadequate: numerous disasters - from bhopal to tchernobyl, to the danube – have gone unpunished or with ridiculously low compensations.
- we need to create the international criminal court of the environment and health and the european criminal court of the environment and health, whose investigations will be conducted by a european prosecutor.
- the necessity to enforce criminal sanctions for actions against the environment and health
- plans to create these courts by IAES (International Academy of Environmental Sciences) and by SEJF (Supranational Environmental Justice Foundation): the authorities' response and relations with other associations.

**Round Table: Gaining
recognition of health and
environment attack as a crime
against humanity survival:
setting up**



Dr Ahmed ALAMI

Medical doctor, former member of parliament, former minister of Health of Morocco and Honorary President of the Medical Board and the Social Affairs and Education Commission, is the Vice- President of the *Association of former Ministers of the environment and former directors of international environmental organizations (AME-DIE)*.



Marie-Odile BERTELLA-GEFFROY

An honorary investigating judge, coordinated the Public health unit of the Paris Court and investigated several criminal cases of public health, including the non- ministerial part of the tainted blood affair and growth hormone, asbestos and Tchernobyl cases.



Florent COMPAIN

President of Friends of the Earth France since 2013. Founding member of the local group of Friends of the Earth Meurthe-et-Moselle created in 2008, and activist for environmental issues for over 10 years, is committed to protecting forest and around the wood energy resources and in the defense of sustainable societies.



Sandor FULOP

Doctor of Laws of the Debrecan University (Hungary), a former member of the *Aarhus Convention Compliance Committee*, and of the *Hungarian National Environmental Committee*, is a Hungarian Member of Parliament. He chairs the Environmental Management and Law Association (EMLA).



Corinne LEPAGE

A French politician, a lawyer specialized in environment and public law, a community activist and co-founder of CRIIGEN (“Comité de Recherche et d’Information Indépendantes sur le génie Génétique”), a former Minister of the Environment in France. Founder of the political party CAP 21, elected at the European Parliament from 2009 to 2014, she co-founded the Association of former Ministers of the environment and former directors of international environmental organizations (AME-DOIE).



Laurent NEYRET

A jurist specialized in Environmental and public health law, is an expert to *Commission of Law and Environmental policies* of the French Committee of the International Union for Conservation of Nature. He is a University Professor of Private Law of the University of Versailles Saint Quentin, after teaching at the University of Artois.



Damien SHORT

Doctor of Laws, is the Director of the *Human Rights Consortium* (HRC) and a lecturer in Human Rights.



Dr Ahmed ALAMI

Medical doctor, former member of parliament, former minister of Health of Morocco and Honorary President of the Medical Board and the Social Affairs and Education Commission, is the Vice-President of the *Association of former Ministers of the environment and former directors of international environmental organizations (AME-DIE)*.

Geopolitical and human consequences of climatic change:

- Growing degradation of biodiversity in the world,
- Extensive exploitation of natural resources,
- Widespread extinction of animal and plant species,
- Development of viral, parasitic and bacterial, genetic and endocrine diseases,
- Rise of the sea level threatening many islands and some countries.

All these call more than ever for the implementation of effective measures to preserve health and the environment worldwide.

Created in 2010, the Association of Former Environment Ministers and International leaders of the Environment (AME-DIE) aims at gathering all the key players who have worked at key positions within governments or other top organizations in the field of the environment so as to pool their experiences to defend a genuinely sustainable development, to enhance the struggle against climatic change, to promote effective protection of biodiversity and implement a policy to prevent threats weighing upon the future of the next generations.

In January 2014, environmental organizations meeting in Brussels all acknowledged the environmental damage and the urgency to act, and they drew up a joint document known as:

The Charter of Brussels

This Charter suggests a gradual approach in terms of sanctions against those responsible of damage to the environment. The goal here is for ecocide to be recognized as a national crime in each State, but

also as an international crime, so as to be trialed by an international Court of Justice.

The Charter of Brussels is a world appeal to create:

- a European Environmental Criminal Court,
- a European Environmental and Health Criminal Court, and recognize the environmental disaster as a crime against humanity.

What can be done if we don't this appeal to go unheeded?

To meet this challenge, we need political determination, a strategy and general mobilization.



Marie-Odile BERTELLA-GEFFROY

An honorary investigating judge, coordinated the Public health unit of the Paris Court and investigated several criminal cases of public health, including the non- ministerial part of the tainted blood affair and growth hormone, asbestos and Tchernobyl cases.

Based on my experience as an investigating magistrate in the public health unit at the court of Paris, the investigations carried out (searches, national and international letters rogatory) allow to lead to a public trial at times or at least to determine the causes of health and environmental disasters, and responsibilities for the purpose of looking into the causes of these disasters, the purpose of sanctioning those responsible, but also of preventing future disasters. These responsibilities are those of the State itself that has not knowingly protected the population (asbestos, consequences of Chernobyl cloud over France, nuclear tests in Mururoa and the Sahara) or multinationals with international strategies (asbestos, industrial pollutions) or else internationally organized mafias (waste, trafficking of all kinds): national justice, even as centralized as it is in the Public Health Unit, is powerless in many cases, due to either legal impediments (clear evidence of the causal link between victims' damage and the careless mistakes perpetrated by people aware of the danger), or obstacles related to means not provided for investigations, or else finally obstacles placed by the French judiciary system itself. Let's take the case of asbestos in France and abroad: remember the official figures: more than 100,000 deaths related to lung cancer and others between 1995 and 2009, 100,000 deaths due to asbestos in the years to come in France by 2050. Criminal justice in France has been hampered in many of these victims' cases in factories and their immediate surroundings, and in public and private buildings and their surroundings: the example of the very quick and significant sentence in the Torino trial in 2013 to criminal penalties (18 years' imprisonment), industrialists responsible for the deaths of workers in 5 Eternit factories in Italy, while the same investigations in 5 plants of Eternit in France have been hampered, is a heartbreaking example. In this case, justice is not the same for the same victims according to their nationalities: justice on one side of the Alps, injustice on the other, though it has been demonstrated that during French and Italian criminal investigations, there is an industrial international strategy on the controlled use of asbestos and lies on its toxicity. Is impunity being organized today? And what about current asbestos

victims in countries that have not yet banned this deadly product? What about current contaminations in France due to the presence of asbestos in many buildings, and those due to asbestos waste in, often open, landfills? Asbestos: Low Noise Global Health Catastrophe, shifted back in time due to the long incubation period of cancer, and spread all over Europe and the world. What is the European law doing? Investigations and trials should have been centralized, at least in Europe. What can we do together? Request the creation of joint criminal investigations by the European Public Prosecutor, for the purpose of prevention, and joint trials on the same health disasters; that is how the European Criminal Court must be designed and understood, and this is what I have been working for several years with Nino Abrami who has just spoken to you about the declaration of the Venice Appeal of April 3, 2012, the creation of a foundation for this purpose in Venice named SEJF (on August 26, 2012), with Corinne Lepage, Ecocide, AME-DIE (association of former European Ministers of environment), the network of European Prosecutors, the Basso foundation and other associations (launch of the Brussels Appeal on January 30, 2014). What is the international law doing? Indeed, we need European awareness, but also international awareness so as to sanction those responsible for air, soil, water pollutions, the damage to the ecosystem, and stop them; this international court for the environment and health must be created; because international law has a prominent role to play in the survival of the human race on this planet, which we are just borrowing from our children; we have to define a criminal law for health and environmental safety, sanctioned by a European and international jurisdiction in the cases of ecocides or crimes against the human race, and this should be included in the Rome Statute. The right to life and to a healthy environment is an inalienable attribute of the human being and constitutes the highest value in the scale of human rights. Interfering with it must be sanctioned by an international criminal tribunal.



Florent COMPAIN

President of Friends of the Earth France since 2013. Founding member of the local group of Friends of the Earth Meurthe-et-Moselle created in 2008, and activist for environmental issues for over 10 years, is committed to protecting forest and around the wood energy resources and in the defense of sustainable societies.



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Doctor of Laws of the Debrecan University (Hungary), a former member of the Aarhus Convention Compliance Committee, and of the Hungarian National Environmental Committee, is a Hungarian Member of Parliament. He chairs the Environmental Management and Law Association (EMLA).

THE ROLE OF LAW IN FIGHTING THE SYSTEM OF ECOLOGICAL THREATS

Gaining recognition of health and environment attacks as a crime against humanity: strategizing and setting up” – the Fourth Anniversary Congress, Paris Appeal, November 14, 2014 Paris

According to the famous and most frequently quoted article of Rockström at al. in the September 24 edition of Nature, the humankind face a system of ecological disasters, with elements such as climate change, loss of biodiversity, breakdown of the nitrogen and phosphorous household of arable lands, decrease in access to fresh water, desertification, ozone layer depletion, uncontrolled presence of tens of thousands of dangerous chemicals (and billions of their combinations) and the waste problem. The caveat of this article is that in the first three cases listed above, we have crossed our Planetary Boundaries from where positive feedback loops enter into operation and our ability to control the disastrous proceedings is more and more limited. Major scientific efforts concerted by UN, such as MEA, the serial of IPCC and GEO reports reinforce this statement with a vast amount of carefully examined data. Based upon these recognitions, also with the support of UN there are other documents that sketches the ways of mitigation of the ecological harms and the ways of accommodation to them, such as the Ban Ki-moon report on the possibilities of ensuring higher level intergenerational justice, the John Knox report on the interrelationship between human rights and environmental protection and also the draft of the new Sustainable Development Goals. Private enterprises, such as the detailed paper of the Oxford Martin Commission, titled “Now for the Long Term” and the World Future Council’s GFACT declaration also consider the exceptionally fragile situation of the human civilisation and offer a line of institutional, organizational and legal solutions.

But how far can law be instrumental in this fight against the multiple effects of immanent ecological crises? Legal values of intergenerational justice, also human rights in close connection with environmental protection are present in the majority of national constitutions and can also be found in more than 60 major international legal documents. Such values and general rights appear in the major state level planning documents of environmental protection or

sustainable development, too. However, at the time being, these general ideas seldom cascade down to the level of actual laws and regulations, let alone their really weak influence on the everyday legal practice. Even if a line of international and national level general legal sources acknowledge the precautionary principle, it has little effect on the legal rules and decisions concerning such risky activities that spreading out and using genetically modified organisms (GMOs) or using devices that emit non-ionising radiation, starting from the mobile phones, through the microwave ovens up to such large equipment as a military radio locator. Chemicals used in food, dresses, furniture, construction, toys and in thousands of other forms around us is one of the best example of the irresponsible handling the unknown effects of new technologies and materials that is so much typical to our culture.

Yet, the last two decades of the development of the environmental law offer some examples of great legal innovations that might make environmental law and the related fields of law that tackle with environmental problems grades more effective. The family of legal institutions of environmental impact assessment (existing and new plants, national and international projects, SMEs voluntary assessments etc.), the system of public participation rights (access to information, participation and legal remedies and also capacity building) and especially targeting the world of hazardous materials, TRI and PRTR type of legal institutions offer promising new legal approaches. Time will tell how effective these and the similar legal innovations that follow them will be in solving the basic sustainability conflicts of our societies.



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If there is an urgent need for criminal law to rescue humanity, it is because the severity of the impact of human action has changed. In terms of space, the threat has become cross-border as evidenced by the global consequences of chemical risk or air pollution associated risk. In terms of time, the man created risks extend to future generations. Yet, the extension of man power should come along with an extension of his duties.

It remains to be seen whether the creation of a new international crime that would take the form of a crime against the survival of humanity is possible by expanding the category of the most severe crimes that fall under the International Criminal Court and that threaten the world "peace, security and well-being"? Such an evolution of international law has several prerequisites.

First, the international community must show its reprobation to acts affecting severely the survival of humanity, through statements or agreements signed by the greatest possible numbers of states. Second, states should agree on the ones subject to criminal prosecution. In other words, who are the criminals who should be brought to trial by an international criminal court? In the state of international law, only individuals, excluding transnational corporations can be sued in such jurisdictions. Finally, a supranational crime against the survival of humanity should be confined to the most severe violations of health and environmental international law, involving notably the knowledge of the high probability of harming humanity and future generations.

Anyway, even though criminal law is a possible solution for the protection of humanity against the most serious chemical hazards, it is certainly not the only one. Indeed, it should be exceptional and associated with a civil and administrative-type response, requiring from any private or public person which causes or threatens to cause severe, widespread and lasting damage to the environment and to humanity, to avoid, reduce or compensate the damage, if only by anticipation, by contributing to a global fund.



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APPENDICES