

Prof. Dr. jur. Silja Voenny, Director Institute of Public International Law
University of Freiburg, Germany
Member of the German Ethics Council
Visiting Fellow, HLS, Human Rights Program

October 7, 2015

svoenky@law.harvard.edu / www.jura.uni-freiburg.de/intl / <https://twitter.com/PublicIntLaw>

**PRÉCIS BOOK PROJECT (2015-2016):
EXISTENTIAL RISKS, THE PRECAUTIONARY PRINCIPLE, AND HUMAN RIGHTS**

I. SETTING THE SCENE

The research project I am pursuing during my stay at Harvard Law School focuses on existential risks, the precautionary principle and whether (or: to what extent) the precautionary principle can be linked to fundamental human rights. These fundamental human rights consist most notably out of the right to life, the right to health, and the right to scientific freedom. States are not merely required to respect these right but also obligated to protect them.

Discussing the topic of existential risks by scientific and technological progress means dealing with essential questions regarding the future of humankind: How can we rationally deal with low probability/high risk scenarios in the area of scientific research, if the research is aimed to solve problems of humankind (e.g. fight global warming; fight an epidemic etc.)? What responsibilities do States and even the international community as a whole have to reduce and manage these risks? Can these risks be effectively minimized without disproportionately restricting science, and technological progress? Shall the freedom of research be limited considering potential (existential) risks? Are there gaps in the legal framework that must be addressed on a domestic or international level?

1. WHY TO DEAL WITH EXISTENTIAL RISKS BY SCIENCE AND TECHNICAL DEVELOPMENTS FROM A HUMAN RIGHTS PERSPECTIVE?

Today there is a growing concern in the scientific community and the public of so-called “existential risks” caused by scientific experiments and technological progress. Hotly debated areas are, for instance, certain types of geoengineering, the development of artificial intelligence (AI), and specific types of research in biotechnology:¹

Concrete examples for kinds of research and technical developments that might fall in this category are viruses that are modified in the way that their pathogenicity is enhanced (i.e. certain types of gain of function experiments (GOF))² or injecting large amounts of sulfur dioxide gas into the stratosphere, which form sulfate aerosol in order to reflect more sunlight (i.e. certain types of solar radiation management).

Institutes at high-ranked universities already deal with existential risks. These are for instance the Future of Humanity Institute (Oxford Martin School & Faculty of Philosophy, UK), the Cambridge Centre for the

¹ For an overview cf. N. Bostrom/M.M. Cirkovic (eds.), *Global Catastrophic Risks*, 2008; on artificial intelligence see E. Brynjolfsson/A. McAfee, *The Second Machine Age*, 2014, 252 et seq.; on geoengineering see the report: *Climate Intervention: Reflecting Sunlight to Cool Earth*, 2015 by the Committee on Geoengineering Climate, available at: <http://www.nap.edu/catalog/18988/climate-intervention-reflecting-sunlight-to-cool-earth>.

² German Ethics Council, *Biosecurity – Freedom and Responsibility of Research*, 2014, available at: <http://www.ethikrat.org/files/opinion-biosecurity.pdf>.

Study of Existential Risk (CSER) (University of Cambridge, UK) and the Future of Life Institute (Boston, MA).³ However, these institutes deal mainly with the topic from a natural-science perspective (“What will be the development of science in a certain field during the next 20 to 30 years?”) or try to find answers to the ethical implications of certain types of scientific or technical development (“What are the ethical requirements or limits for this kind of technical development or this kind of research?”). One important aim of the whole debate – so it seems – is to possibly develop rules and standards that govern existential risks. It seems striking in this regard that thus far there are hardly any legal arguments advanced in this debate.

Addressing these issues from a legal perspective and especially a human rights perspective is decisive, however: Otherwise there might be the danger that utilitarian/consequentialist arguments (easily transferred to cost-benefit evaluations) will become the only or main ethical paradigm for developing the new rules and standards of our future technical and scientific developments. This kind of an ethical, non-deontological paradigm does not reflect the importance of the human rights as they bind – depending on their source – all States, most States, or at least an important number of the States of the international community and can be implemented by courts or other institutional means.

2. IS THERE A MEANINGFUL NOTION OF EXISTENTIAL RISKS?

The first question in such an inquiry must be, whether (a.) there is or can be a meaningful definition of existential risks; besides of this it must be answered whether (b.) it makes sense if one argues on the basis of legally enshrined human rights to use the notion of existential risks.

One definition of existential risks is brought into the debate by the Philosopher Nick Bostrom; it reads: “An existential risk is one that threatens to cause the extinction of Earth-originating intelligent life or to otherwise permanently and drastically destroy its potential for future desirable development.”⁴ The last part of the definition shows that existential risks includes global catastrophic risks, i.e. those risks that might damage many people or those goods that are important for the survival of mankind. This seems to be convincing at the first glance, but as there are many vague notions (e.g. “desirable development”) a meaningful notion of existential or/and catastrophic risks still has to be developed in order to categorize certain types of risks caused by research and technical developments in a rational way and hence to lay down the analytical basis to treat same cases the same way.

The last argument is decisive for answering the second question whether (b.) it makes sense if one argues on the basis of legally enshrined human rights to use the notion of existential risks. On these topics I will elaborate in the *first chapter*.

3. STRUCTURAL PROBLEMS OF DEALING WITH EXISTENTIAL RISKS

In the *second chapter* I want to stress some specific problems if we deal with existential risks. One major problem in the area of existential risks caused by scientific research and technological progress seems to be that in many cases nobody can quantify these risks: It is still unclear for instance what is the probability that a modified virus might escape from a laboratory; or what the negative effects of geo-engineering will be for human health and the environment if researchers start to inject certain particles in the stratosphere. This is especially true if the problem of the regulation of existential risks overlaps with the discussion of the so-called ‘dual use’ of scientific results. The notion of ‘dual use’ means that terrorists or criminals can misuse findings of research or technical developments to do severe harm. “Dual use research of concern” (DURC) was defined after the 9/11 terrorist attacks as research that has significant potential to give rise to knowledge, products, or technologies, which could be directly misapplied as weapons of mass destruction.⁵

³ Cf. <http://www.fhi.ox.ac.uk/>, <http://cser.org/> and <http://futureoflife.org/home>.

⁴ N. Bostrom, *Superintelligence, Paths, Dangers, Strategies*, 2014, 115; id., *Existential Risk Prevention as Global Priority*, *Global Policy*, Vol 4, Issue 1 (2013): 15-31; available at <http://www.existential-risk.org/concept.html>.

⁵ Cf. the so-called Fink Report: National Research Council, *Biotechnology Research in an Age of Terrorism*, 2004, available at: <http://www.nap.edu/catalog/10827/biotechnology-research-in-an-age-of-terrorism>.

Although quantifying the probability of the realisation of an existential risks is often extremely difficult and sometimes impossible, many hard cases are viewed as so-called low probability/high risk scenarios. This means that the probability of the occurrence of a certain damage is (de facto or ex ante) low but not zero and the occurrence might have (potentially) huge, even existential or catastrophic consequences.

II. THE LINK BETWEEN THE PRECAUTIONARY PRINCIPLE AND HUMAN RIGHTS

1. THE PRECAUTIONARY PRINCIPLE: FOUNDATIONS AND LIMITS

In the *third chapter* I want to analyse whether it is possible to reinforce the so-called ‘precautionary principle’ as a decisive basis for decisions in the field of low probability/high risk research and technical developments. A widely accepted version of the precautionary principle states that if there are threats of serious or irreversible damage, the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent damages.⁶ As a *legal*⁷ principle it is aimed to protect the environment and enshrined in various multilateral environmental treaties. In the field of the low probability/high risk scenarios one could deduce from this principle – and I want to look into this issue in greater detail – that measures to reduce these risks have to be taken by the States: One could argue in this regard, that the precautionary principle applies in these constellations, as there is an undeniable, albeit low probable risk of catastrophic consequences.

However this is not an argument that seems to be backed by international law. Only some scholars argue that the precautionary principle is part of customary international law.⁸ On the other hand there are many critical views on the precautionary principle, its legal force and its justification⁹ apart from certain specific treaties, where it is explicitly laid down (as for instance in the 1991 Protocol of Environmental Protection to the Antarctic Treaty¹⁰ the 2000 Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol)).¹¹

2. RISK REDUCTION DUTIES AS PART OF HUMAN RIGHTS LAW

The main question of my research project will be, and this shall be spelled out in the *fourth chapter*, whether this finding – that measures to reduce the risks in the field of certain areas of scientific research have to be taken if there is a more than zero probability of catastrophic negative consequences – can be derived from human rights and/or reconciled with those rights. To answer these questions is the main aim of my research proposal. The reason for this is that the precautionary principle is merely legally binding in specific areas of international environmental law and not a general principle that would require States to reduce existential or catastrophic risks.

⁶ Cf. in this regard Principle 15 of the 1992 Rio-Declaration (available at: <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163>): “In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” Cf. M. Schröder, Precautionary Approach/Principle, in R. Wolfrum (ed.), Max Planck Encyclopedia of Public International Law, Vol. VIII, 2012, 401; available at: <http://opil.ouplaw.com/home/EPIL>.

⁷ For a discussion of the philosophical/ethical questions see J. Nida-Rümelin, B. Rath, J. Schulenburg, Risikoethik, 2012.

⁸ For an overview see: M. Schröder, Precautionary Approach/Principle, in R. Wolfrum (ed.), Max Planck Encyclopedia of Public International Law, Vol. VIII, 2012, 400 et seq.

⁹ Cf. C.R. Sunstein, Laws of Fear: Beyond the Precautionary Principle, 2009.

¹⁰ For details see S. Voeneke, S. Addison-Agyei, Antarctica, in R. Wolfrum (ed.), Max Planck Encyclopedia of Public International Law, Vol. I, 2012, 426 et seq. Parties of the Protocol are inter alia China, France, Germany, India, Russia, UK and the U.S.

¹¹ Cartagena Protocol on Biosafety to the Convention on Biological Diversity of 29 January 2000, 39 ILM 1027; the U.S., however, is not a party to the Protocol. M. Böckenförde, Biological Safety, in R. Wolfrum (ed.), Max Planck Encyclopedia of Public International Law, Vol. I, 2012, 939.

From a human rights perspective as a starting point one could state that the fundamental human right of a researcher– the freedom of research – as sometimes expressly enshrined in national constitutions,¹² and besides of this entailed in the right of freedom of expression as part of international human right treaties (as for instance the 1950 European Convention on Human Rights and the 1966 International Covenant on Civil and Political Rights) may be restricted in a proportional manner for legitimate aims. A violation of this human right is given if there are no legitimate aims or the limitation is not necessary to reach the aim or it is disproportional in relation to the protected good. The protection of the life and health of human beings are legitimate aims according to national constitutions¹³ that can justify proportional limitations of the right of freedom of science.¹⁴ The legitimate aims according to the 1950 European Convention on Human Rights and according to the 1966 International Covenant on Civil and Political Rights required to limit the right of freedom of expression/the right of freedom of science, are even broader.¹⁵

Besides, it is well established that even the so-called first generation human rights oblige States not only to respect, but also to protect the fundamental rights of the individuals:¹⁶ Thus, one could argue that the legislator of a State is obliged by international human rights to lay down rules to minimize risks for protected goods, such as the life and health of human beings. This duty seems to exist for every State that is party to the 1950 European Convention on Human Rights or the 1966 International Covenant on Civil and Political Rights as for instance Germany, or the US.

It is questionable whether the duty to protect life and health of individuals includes a duty of the State organs to assess and evaluate risks - or to lay down (legal) rules that oblige the researcher to do so - even if there are low probability scenarios and no actual or concrete dangers are given. If one could answer this in the affirmative the next question would be *what kind* of assessment and risk evaluation can be derived from the human rights of life and health and whether the precautionary principle can provide guidance in this matter.

III. A WAY FORWARD: HUMAN RIGHTS AND FUTURE TECHNICAL DEVELOPMENTS

In the *fifth and final chapter* I want to analyse whether there is the need for new international norms that might fill the lacunae in the area of low probability/high risk research scenarios and, if there is the need, what the content of such norms should be. Today, international treaty law does not regulate in a sufficient and specific way research for peaceful purposes that could form part of low probability/high risk scenarios. There are international soft law declarations that regulate biomedical research, as for instance the research on human beings is covered by the 2005 UNESCO “Universal Declaration on Bioethics and Human Rights”.¹⁷ This Declaration consists of 28 articles that connect “bioethical” principles – based on utilitarian principles – to international human rights. It has to be seen whether there are reasons to propose a similar declaration that links principles and duties to reduce risks (principles of an – perhaps utilitarian - “ethic of risks”) to international human rights. In any way such a declaration must not entail principles of an ethic of risks that are incompatible with human rights law.

¹² As for instance in Art. 5 para. 3 German Basic Law.

¹³ As for instance Art. 2 para. 2 German Basic Law.

¹⁴ For a decision of the German Constitutional Court see BVerfG, 18. 2. 2010, 2 BvR 2502/08 (CERN).

¹⁵ Cf. Art. 19 para. 3 International Covenant on Civil and Political Rights, Art. 10 para. 2 European Convention on Human Rights.

¹⁶ An obligation to protect, not only an obligation to respect; cf. UN Commission on Human Rights, Res. 2005/69, 20.04.2005, UN Doc. E/CN.4/2005/L.10/Add.17; General Comments No 13 § 46, HRI/GEN/1/Rewv.7, 87.

¹⁷ UNESCO, Universal Declaration on Bioethics and Human Rights, C/Res 24, 19 October 2005. For further references see H.C. Wilms, *Die Unverbindlichkeit der Verantwortung*, 2015, 346 et seq.; S. Voeneke, *Recht, Moral und Ethik*, 2010, 368 et seq.