



**SPRIMUN**

SCIENCES PO RENNES INTERNATIONAL  
MODEL UNITED NATIONS

# STUDY GUIDE

**UNESCO**

UN EDUCATIONAL, SCIENTIFIC & CULTURAL  
ORGANIZATION

# FOREWORDS

Distinguished delegates,

The 2020 SPRIMUN team is very honored to welcome you in Rennes for the conference. We are very excited to meet you and to witness this week of enriching debates. We also hope to make you discover more about Rennes, whether you come from here or a little farther.

During this adventure, you will be guided by your two wonderful chairs, Ilias Tsakayiannis and Lucas Dubois, who have made the most to prepare you for negotiations. You will be part of the United Nations Educational, Scientific and Cultural Organization, a committee that works on promoting worldwide peace by preserving culture, fostering the access to education, the development and diffusion of science. In front of the rise of unilateralism, your committee has a more important role than ever, by its ability to encourage all countries' collaborations through these domains.

Nowadays, various events around the world have shown the difficulty for journalists to be able to do their jobs, the risks they have to take in order to bring us information, while their role is central in democracies. Hence, we had the ambition, along with your chairs, to put this topic on the SPRIMUN agenda. The advent of progress in new biological technologies, such as gene editing, also raise new uncertainties and new ethical concerns that have to be dealt with, despite the fact that we rarely hear of these questions. We wanted to make SPRIMUN the occasion to bring to the table topics that will be crucial in the future, and to be able to evoke issues pertaining to the scientific field. These questions are not simple to answer, but these three days promise to be very interesting by the diversity of point of views you will hear while trying to solve them, and by the stimulating ideas you will find. Take advantage to listen the diversity of voices and countries around the table, and to speak up also! The final resolution will reflect your work at the end conference.

To make the most of your experience and be a perfect delegate (and maybe win awards!) we advise you to take time to prepare. Resort to this study guide to get all the information you need on the topics. During the simulations, represent your country's position, while at the same time trying to discuss with other countries and to find agreements to eventually achieve the writing of a common resolution bringing progress. Please keep in mind that it is strictly forbidden to bring already written draft resolutions to the conference, as all the working papers and draft resolutions should be only developed during SPRIMUN, not before.

If you have any question that comes to your mind during your preparation, or if you need any help, please ask us. We are here to help you and to make sure you have the most amazing experience during SPRIMUN. We are looking forward to meeting you.

Good luck in your preparation.

Best regards,

Adèle Billon and Nolwenn Le Meaux SPRIMUN 2020  
Committees and Delegates Managers

Dear Delegates,

It is our sincere pleasure to welcome you to SPRIMUN 2020 with the UNESCO committee. We are delighted to be serving as the Board of the Committee for the Sciences Po Rennes United Nation Conference, and we look forward to meeting and working with all of you. This document is meant to serve as a "helping hand" and a study tool for the conference. Our Committee is faced to the challenging task of comprehensively dealing with a very crucial issue currently placed at the top of the international agenda. Implementing a global framework respecting freedom of the press and the safety of journalists will be our main topic. Our response should be unanimous, and our work should exceed all expectations. More precisely, our proposals should be practicable with the sole purpose of rendering the world as a better place. To conclude, we would like to welcome you once again to this year's UNESCO Committee and simultaneously urge you to make a thorough research upon the topic, which is to be discussed during our debates. A decent start shall be to begin reading the present study guide as a steppingstone to expand your research. We look forward to meeting you all in March!

Best wishes,

Illias

Distinguished delegates,

I am Lucas Dubois. I have to express my excitement and my motivation to participate in the 2020 edition of SPRIMUN. Being a chair in the UNESCO committee is such a pleasure for me since it deals with issues that passionate so much.

I think the two topics selected are of major importance. We have to tackle the issues concerning human liberties linked to civilians' liberties but also to biological liberties. Our world is constantly evolving. We have to accompany each society's evolution by creating new and relevant legal frameworks. Gene editing is such a delicate subject and we have to fix it on an international level to ensure a multilateral cooperation. It is necessary that each citizen is carefully listened, and that human rights are respected.

So, welcome in our conference in which, I hope, you will enjoy each moment: the conference, the visits and socials.

Remember to have fun, to socialize and to give the best you can in your committees. It's a play, so let's play. I wish you all the best for those conferences.

Lucas

How to use this study guide:

This document is not an exhaustive guide of the issues that will be raised regarding your Committee's topics. The study guide provides guidelines and references to help the delegates in doing their own research on the issues.

# UN EDUCATIONAL, SCIENTIFIC & CULTURAL ORGANIZATION OVERVIEW

In 1942, in the middle of wartime, European governments that were confronting Nazi Germany and its allies, met in the United Kingdom during the Conference of Allied Ministers of Education (CAME). After the end of the Second World War, governments wanted to reconstruct their educational systems, and they decided to establish an educational and cultural organization which convened in London between 16 November 1944 to 16, 1945. UNESCO is the United Nations Educational, Scientific and Cultural Organization. Its purpose is to build peace through international cooperation in Education, Sciences and Culture. UNESCO programs contribute to the achievement of the Sustainable Development Goals defined in Agenda 2030, adopted by the UN General Assembly in 2015.<sup>1</sup>

The vision of UNESCO is to build world peace through international dialogue. National political and economic arrangements are not enough to achieve this goal. The universal support and solidarity is strongly needed. UNESCO keeps developing educational tools to help people living as global citizens freed from hate and intolerance. UNESCO works so that each child and citizen has access to a good level of education. By promoting cultural heritage and the equal dignity of all cultures, UNESCO strengthens bonds among nations. UNESCO stands up for freedom of speech, as a fundamental right and a key condition for democracy and development. Serving as a laboratory of ideas, UNESCO helps countries to adopt international standards and manages programs that foster the free flow of ideas and knowledge sharing. Nowadays, cultural diversity is under attack and new forms of intolerance, rejection of scientific is threatening the freedom of expression, peace and human rights. In response, UNESCO's duty remains to reaffirm the humanist missions of education, science and culture. The General Conference is composed of the representatives of UNESCO's Member States. Each country has one vote, irrespective of its size or the extent of its contribution to the budget.<sup>2</sup>

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<sup>1</sup> <https://en.unesco.org/about-us/introducing-unesco>

<sup>2</sup> <https://en.unesco.org/about-us/governance>

# **TOPIC A: IMPLEMENTING A GLOBAL FRAMEWORK RESPECTING FREEDOM OF THE PRESS AND THE SAFETY OF JOURNALISTS**

## **INTRODUCTION TO THE TOPIC**

“Freedom of expression is a universal human right. It is not the prerogative of the politician, nor the privilege of the journalist. In their day-to-day work journalists are simply exercising every citizen’s right to be free citizens.”<sup>3</sup>

UNESCO strongly pointed out, from 2012 through 2016, the killing of 530 journalists, an average of two deaths per week. Furthermore, between 2007 and 2011, UNESCO recorded 316 killings. 2012 was the deadliest year on record with 124 journalists killed. With several countries experiencing conflict situations, the Arab region remains the most dangerous area for journalists, with 191 journalists killed between 2012 and 2016. Impunity for the killing of journalists prevails as the predominant trend, with the vast majority of crimes remaining unresolved. Impunity is considered as a key obstacle to ensuring journalists’ safety, while producing a strong chilling effect on the exercise of freedom of expression. A culture of impunity gives the journalists the knowledge that their crimes will be unpunished. The root cause of the continuing trend of impunity has been attributed to a lack of political will to pursue investigations, especially because of the fear of reprisals from criminal networks in addition to inadequate legal framework, a weak judicial system, a lack of resources allocated to law enforcement negligence and corruption.

On request of Intergovernmental Council of UNESCO’s International Program for the Development of Communication (IPDC), UNESCO had developed a mechanism to monitor ongoing impunity. Each year, UNESCO’s Director-General sends requests to Member States asking them to inform the Organization of the status of ongoing investigations regarding the killing of journalists that the Director-General has condemned. UNESCO records the responses to these requests and categorizes them as ‘resolved’, ‘ongoing/unresolved’, or ‘no response’.

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<sup>3</sup> <http://www.newsmediauk.org/Current-Topics/Press-Freedom>

Based on Member State responses, the majority of resolved cases has remained low and relatively unchanged. Since UNESCO began requesting information on the judicial follow-up to journalists' killings condemned by the Director-General, the Organization has received information from 63 out of 75 Member States.

## **Digital safety for journalists**

The digital sphere has brought opportunities for freedom of expression and the practice of journalism more broadly. Yet, the digital sphere is evolving and surveillance, data storage capabilities and digital attack technologies are becoming more sophisticated, less expensive and more pervasive, making journalists increasingly vulnerable to digital attacks from both state and non-state actors. Educating journalists about digital security measures is essential for their own safety and to protect freedom of expression. Threats include: a) surveillance b) tracking, c) denial of service attacks d) data mining e) hacking f) fake domain attacks g) confiscation of digital hardware. A continuing trend at the state level is the use of legislative resources in the name of national-security and anti-terrorism initiatives, which have been seen by some to erode protections for freedom of expression. Across all regions, this trend that grants security forces greater powers of surveillance and tracking appears to be strengthening, raising questions of independent oversight and proportionate actions vis-à-vis the surveillance of journalism and their courses.

Digital security is imperative for not only individual journalists themselves, but also for the protection of their courses and their colleagues in the field. This is particularly critical for citizen journalists in distress, freelancers and those aware of the digital threats to privacy and source protection. The period has seen a continuation of the trend in the arbitrary use of surveillance malware to track and spy on journalists and their sources. There were numerous cases across all regions, and throughout democratic and other societies, of both state and non-state actors using malware to spy on journalists and activists. This trend has been facilitated by the rise of inexpensive surveillance technologies that are readily available for purchase by both state and non-state actors alike.

Journalists facing threats to their physical safety have been found to be particularly vulnerable to digital threats, and they are often unable or unwilling to take steps to mitigate digital risks.

The data also indicated that even when journalists are aware of risks concerning their digital security, digital security tools are often technical, leading few journalists to implement the tools correctly. Material resources, especially for freelancers and

bloggers, are also often insufficient to purchase relevant software or multiple devices to mitigate security journalists and providing in-depth security guides and training on how to reinforce digital security. Civil society organizations have taken greater steps to document attacks against journalists in the digital sphere. Educating journalists and media professionals on the fundamentals of digital safety, such as end-to-end encryption, virtual private networks (VPNs) and malware detection and avoidance has become a greater priority for the civil society and media professionals. There are also many more examples of journalism schools and media faculties incorporating digital safety training into their curricula.

In recent cases, journalists have had their social media accounts, such as Twitter, hacked, and their private messages exposed to the public or experienced 'doxxing', the practice of obtaining and publishing private and identifiable information about individuals, usually with malicious intent. Journalists across the globe have reported digitally-mediated threats of death, bombing violence against themselves and family members, rape, abuse and insult.

## **HISTORY**

The Human Rights Council (HRC) is a UN intergovernmental body of 47 member states elected by the General Assembly. In 2012, the HRC passed a landmark resolution regarding the safety of journalists that focuses specifically on the high risks faced by journalists and the need to secure better protection for media workers. The resolution recognizes the importance of all forms of media, including the Internet, in the promotion and protection of the right to freedom of opinion and expression, and condemns all attacks and violence against journalists. In 2014 the HRC followed up with another resolution (A/HRC/27/L7) which elaborated substantially on the earlier resolution and in the same year the UN Secretary General published an extensive report on the safety of journalists and the issue of impunity.

On December 18<sup>th</sup>, 2013, the UN General Assembly adopted the 'Resolution on the Safety of Journalists and the Issue of Impunity' at its 68th session. The resolution condemns unequivocally all attacks and violence against journalists and media workers, such as torture, extrajudicial killings, enforced disappearances and arbitrary detention, as well as intimidation and harassment in both conflict and non-conflict situations. It also proclaimed November 2<sup>nd</sup> as the International Day to End Impunity for Crimes against journalists. In May 2013, participants at a UNESCO conference adopted the

San Jose Declaration titled 'Safe to Speak: Securing Freedom of Expression in all Media' on the 20th anniversary of World Press Freedom Day. This Declaration urges media outlets and professional associations to develop and sustain safety practices, including digital security training for freelance employees and regular staffers. It also calls on UNESCO member states to undertake action that ensure the freedom of expression of all those who use digital media, including bloggers and social media producers, and safeguard against intimidation physical and cyber-attacks, and attempts on their lives. Similar principles were advanced in the Paris Declaration Post-2015 Agenda: The right of access to information, independent media and safety for exercising freedom of expression, are essential to development.

### **UN Plan of Action on the Safety of Journalists and the Issue of Impunity**

The UN Plan of Action on the safety of Journalists and the Issue of Impunity is the result of a process that began in 2010 upon request of the Intergovernmental Council of the International Program for the Development of Communication (IPDC) supported by the Director-General of UNESCO at the request of the IPDC Intergovernmental Council and on 12 April 2012, it was adopted by the UN Chief Executives Board. In November 2012, during the second UN Inter-Agency meeting, a comprehensive Implementation Strategy was adopted which included over 120 concrete actions that could be taken for the protection of journalists and its related issues. "The Implementation Strategy served as the basis for the review process which took place during the third UN Inter Agency meeting, which was held in November 2014.

### **United Nations**

The safety of journalists and their role in promoting inclusive and sustainable societies has also been recognized in the 2030 Agenda for Sustainable Development. In particular Goal 16, which outlines the promotion of peaceful and inclusive societies for sustainable development, with the need of providing access to justice for all and build effective and inclusive institutions at all levels. Target 16.10 aims to ensure public access to information and one of its two corresponding indicators, indicator 16.10.1 measures this in instances of killings, kidnappings, enforced disappearances, arbitrary detention and torture against journalists. UNESCO played a key role with the GFMD and OHRC, in advocating for the inclusion of indicator 16.10.1 and in developing its methodology.

In the past five years, the United Nations General Assembly, the UN Security Council, the UN Human Rights Council (UNHCR) and UNESCP have all passed resolutions condemning explicitly attacks and violence against the prevailing impunity. The UNESCO issue its 196<sup>TH</sup> Executive Board Decision on the safety of Journalists and the Issue of Impunity (196 EX/31). This decision strongly encouraged Member States to actively provide information, on a voluntary basis, concerning the judicial investigations of killing of journalists to UNESCO.

Other UNESCO decision was the UNESCO 201st Executive Board Decision on the safety of journalists and the issues of impunity (201 EX/SR.10). In this Decision, UNESCO's Executive Board expressed its commitment to the safety of journalists and media workers. It acknowledged the specific risks faced by women journalists and encouraged Member States to develop national prevention, protection and prosecution initiatives.

## **GENDER EQUALITY & THE SAFETY OF JOURNALISTS**

### **Threats on women journalists**

Women journalists whether they are working in an insecure context or in a newsroom, face risks of physical assault, sexual assault, rape and even murder. Women journalists are vulnerable to attacks not only from those attempting to silence their coverage, but also from sources, colleagues and others. A 2014 global survey of nearly 1000 journalists, initiated by the International News Safety Institute (INSI) in partnership with the International Women's Media Foundation (IWMF) and with support of UNESCO, found that nearly two-thirds of women who took part in the survey had experienced intimidation, threats or abuse in the workplace. Yet, one of the most significant challenges in understanding attacks against women journalists is that many incidences are not reported, an indication of the persistence of professional, social or cultural stigmas. Young women and those in the early stages of their career are particularly vulnerable and less likely to report an incident because they are scared of professional consequences. In the context of political polarization, women journalists covering politics are finding themselves under serious threat, leading employer to provide a bodyguard to the women political correspondents.

The last five years have seen intergovernmental organizations and civil society groups taking a more active role in countering stereotypes against women journalists working on volatile beats or in conflict zones. Such groups have been working towards greater documentation of sexual violence and establishing mitigation strategies to minimize the risk, while acknowledging that it can never be fully overcome. The September 2017 report of the UN Secretary General outlines a way forward for a gender sensitive approach to reinforce the safety of women journalists. In 2016, the Council of Europe's Committee of Ministers adopted recommendation CM/Rec(2016)4 on the protection of journalism and the safety of journalists and other media actors, in particular noting the gender-specific threats that many journalists face and calling for urgent, resolute and systematic responses.

Additionally, there has been a drive to deepen the media's understanding and approach to the particular safety issues that confront women journalists while providing important support mechanisms for women working in the field. In 2016, CPJ produced a special report on gender and media freedom worldwide, while the European Centre for Press and Media Freedom has encouraged women journalists to report instances of violence against them by establishing a 'Women's Reporting Point'. The service allows women to seek help and advice by reporting threats of violence via an encrypted messaging service, both providing women journalists an additional level of support and creating a greater level of visibility for attacks against women journalists. Civil society groups have also developed preventive measures such as providing gender-specific safety training that actively confronts the specific risks that women journalists face in the course of their work. In addition, several intergovernmental, civil society, academic and media organizations have begun to provide gender-specific safety training that confronts the specific risks that women journalists face at work.

### **Online harassment of women journalists**

Social media and digital technologies have become an indispensable tool for many journalists in following new leads, discovering stories, distributing news and interacting directly with audiences, leading many journalists to maintain a social media presence across multiple platforms. However, these new opportunities have also been accompanied by a rise in online abuse, particularly towards women journalists.

The types of online harassment of women journalist are a) cyber-bullying b) hate speech, c) public shaming, d) intimidation/threats, e) cyber-stalking, f) doxxing, g) trolling.

An analysis of more than two million tweets performed by the think tank Demos found that women journalists experienced approximately three times as many abusive comments as their male counterparts on Twitter. The Guardian surveyed the 70 million comments recorded on its website between 1999 and 2016 (only 22,000 of which have recorded before 2006). Of these comments, 14 million were blocked for abusive or disruptive behaviors. Notably, of the 10 staff journalists who received the highest levels of abuse and 'dismissive trolling', eight were women, and two were black men, with those articles written by women receiving the highest percentage of abusive comments.

Internet 'trolls' have become a major occupational hazard on social networking sites and it is often difficult to filter or remove abusive content from such platforms leaving journalists vulnerable to a literal 'avalanche of abuse' across multiple platforms from anonymous sources. In both the quantity and intensity of online abuse, women journalists have been disproportionately targeted.

Women tend to receive more threats or comments of a sexual nature, both from readers and sometimes from their peers in the media industry. Threats of rape or violence towards journalists or their families appear to be more prevalent toward women media professionals. The level of abuse of women journalists in digital sphere has serious implications for freedom of expression and equality in gender representation within the media. Digital violence against women journalists has often been psychological in nature, a trend also observed in the Western Europe and North America region in the incidence of successive bomb threats made via Twitter that were directed at a number of high-profile women journalists.

## **BLOC POSITIONS**

### **Latin America**

There has been strong cooperation between Member States throughout the Latin America region in training judges and judicial officials in understanding the main issues surrounding freedom of expression, the safety of journalists and the issue of impunity, including the training of more than 5,500 judicial officials through series massive open online courses developed by UNESCO. The Special Rapporteur from Freedom of Expression to the InterAmerican Commission on Human Rights, in an analysis of case law across 10 States in Latin America and the Caribbean and North America, has found significant regulatory progress throughout the region. High courts in the 10 Member States had enriched and developed the emerging judicial discourse, concerning freedom of expression.

## GUIDING QUESTIONS

- How Member States can protect more the right of freedom of the press, specifically in conflict states?
- How can we make the UN Plan of Action for safety of journalists more effective?
- How Member States will protect the journalists and media workers from cyber harassment and the other digital hazard?
- How can we reinforce the protection of women journalist?

## LINKS AND USEFUL SOURCES

<https://unesdoc.unesco.org/ark:/48223/pf0000261372>

<https://en.unesco.org/themes/safety-journalist>

[http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/WPFD/WPFD-](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/WPFD/WPFD-SanJose-Declaration-2013-en.pdf)

[SanJose-Declaration-2013-en.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/CI/pdf/WPFD/WPFD-SanJose-Declaration-2013-en.pdf) [https://en.unesco.org/un-plan-action-safety-](https://en.unesco.org/un-plan-action-safety-journalists?language=en)

[journalists?language=en](https://en.unesco.org/un-plan-action-safety-journalists/history) <https://en.unesco.org/un-plan-action-safety-journalists/history>

# **TOPIC B:**

## **THE BIOETHICAL IMPLICATIONS OF GENE EDITING**

### **INTRODUCTION TO THE TOPIC**

First, we have to define every term of the topic in order to set the frame for your research and for our debates.

In biology, a gene is a specific chemical pattern on a chromosome (= cell structure) that is received from parents and controls the development of particular characteristics of an animal or plant. Furthermore, it is the basic physical unit of heredity; that is to say a linear sequence of nucleotides along a segment of DNA that provides the coded instructions for the synthesis of RNA, which, when translated into a protein, leads to the expression of hereditary characters.

Also, we have to clarify what does the term “editing” involve. To edit is a way to express the fact of altering arrangement of genes. Consequently, gene editing is a type of genetic engineering in which DNA is inserted, deleted, modified or replaced in the genome of a living organism. Thus, it is a scientific method in which scientists have the ambition to create, to shape, to modify a real living organism in order to modify engineered nucleases, but also to use it as a therapy or to cure diseases. Finally, the ability to do gene editing has permitted the development of various ideologies such as human enhancement or what has been called transhumanism. Therefore, gene editing generates several bioethical issues. We can distinguish three kinds of gene editing. There is first the process of gene insertion which adds new functions to the genome: for example, in drug discovery, or in order to overcome a genetic defect like hemophilia. Gene correction is used to replace an existing defective sequence (which generally impacts the gene’s functions) with a functional sequence. Thus, it can help to treat a serious genetic disease such as cystic fibrosis. Finally, gene inactivation is used to prevent the expression of a gene. This approach can be used to treat persistent viral infections such as AIDS.

Transhumanism is an international cultural and intellectual movement with an eventual goal as fundamentally transforming the human condition by developing and making widely available technologies to greatly enhance human intellectual, physical and psychological capacities. Transhumanist thinkers study the potential benefits and dangers of emerging technologies that could overcome fundamental human limitations, as well as the ethical matters involved in developing and using such

technologies. They predict that human beings may eventually be able to transform themselves into beings with such greatly expanded abilities as to merit the label “posthuman”.

The significant leap in gene-editing tools brought new urgency to long-standing discussions about the ethical and social implications surrounding the genetic engineering of humans. Many questions, such as whether genetic engineering should be used to treat human diseases or to alter traits such as beauty or intelligence, had been asked in one form or another for decades, but now even more, with the introduction of easy and efficient gene editing technologies, particularly CRISPR-Cas9. CRISPR-Cas9, is short for clustered regularly interspaced short palindromic repeats and CRISPR-associated protein 9. The CRISPR-Cas9 system has generated a lot of excitement in the scientific community because it is faster, cheaper, more accurate, and more efficient than other existing genome editing methods. The questions surrounding gene editing are no longer theoretical, and their answers can have very real impacts on medicine and society.

## **HISTORY**

The idea of using gene editing to treat diseases or to alter traits dates to at least the 1950s and the discovery of the double-helix structure of the DNA. In the mid-20th-century era of genetic discovery, researchers realized that the sequence of bases in the DNA is passed (mostly) faithfully from parent to offspring and that small changes in the sequence can represent the difference between health and disease. Recognition of the latter led to the inescapable conjecture that with the identification of “molecular mistakes” that cause genetic diseases would come the means to fix those mistakes and thereby enable the prevention or reversal of disease. That notion was the fundamental idea behind gene therapy and from the 1980s was seen as a holy grail in molecular genetics.

The development of gene-editing technology for gene therapy, however, proved difficult. Much early progress focused not on correcting genetic mistakes in the DNA but rather on attempting to minimize their consequence by providing a functional copy of the mutated gene, either inserted into the genome or maintained as an extrachromosomal unit (outside the genome). While that approach was effective for some conditions, it was complicated and limited in scope.

In 2004, former Secretary-General Kofi Annan questioned whether such processes might promote a world dominated by eugenics like the one imagined by Aldous Huxley in the novel *Brave New World*. "The greatest fear is that we may be trying to 'play God,' with unforeseeable consequences, in the end precipitating our own destruction," Mr. Annan warned then, asking whether the dangers outweigh the benefits and where the line should be drawn between what is feasible and what is desirable or ethical.

The UNESCO member States also adopted the Universal Declaration on Bioethics and Human Rights in 2005 to deal with the ethical issues raised by rapid changes in medicine, life sciences and technology. It lists the human genome as part of the heritage of humanity, outlining rules that need to be observed to respect human dignity, human rights and fundamental freedoms.

## **FRAMEWORK**

Gene editing issues are relevant for countries where traditional medicine is a norm for many citizens and private healthcare is reachable.

More than 40 countries prohibit gene editing in their laws. The Convention on Human Rights and Biomedicine also known as the Oviedo Convention is the only international legally binding instrument on the protection of human rights in the biomedical field. It is binding on 29, mostly European, countries. Its application outside Europe is therefore limited. But it is still important to consider its provisions as it represents an agreement between some countries on these issues. Article 13 states that "an intervention seeking to modify the human genome may only be undertaken for preventive, diagnostic, or therapeutic purposes and only if its aim is not to introduce any modification in the genome of any descendants". This is interpreted as permitting somatic gene editing, but prohibiting germline editing.

Gene editing has created a new "race to the moon", with countries trying to be the pioneers in new technology. It is difficult to oblige countries to restrict their technological capacity as this is often linked to their political power. This is why many countries are not keen on regulating gene editing. They want to push ahead with developing the technology and be the first to bring it to human use.

A study examining global legislation and practices concerning genetic modification, published by Hokkaido University in Japan in 2014, showed that 29 of the 39 countries

reviewed had a ban on editing the human germ line. In 25 countries, the ban was legally binding. The other four had guidelines, while rules in the remaining ten were described as ambiguous. In South Africa, for example, the law does not mention human somatic or germline editing at all.

For example, the Chinese scientist He Jiankui performed in 2018 germline editing on children embryos to try to make them resistant to HIV acquisition. This was labelled as experimentation because the safety of gene editing in humans has not been proven. At the end of 2019, Jiankui was sentenced to three years in prison. However, other researchers in China earlier this year have become the first scientists to announce they had altered the DNA of human embryos incapable of further development, while British scientists have applied for the right to modify embryos genetically as part of wider research. Some Chinese scientists also achieved to modify an aberrant gene that causes a life-threatening blood disorder.

Each jurisdiction's reaction to gene editing will depend on its legal system, as well as the political and religious considerations that might be at play in some countries. A recent poll conducted by STAT and Harvard TH Chan School of Public Health found that 65 per cent of the public in the United States believes that gene editing to reduce the risk of an unborn child developing certain serious diseases should be illegal. However, against this backdrop, in June 2016, a team of researchers from the University of Pennsylvania received approval from a federal committee to launch a trial to study the safety of CRISPR-Cas9 on human patients. The US Food and Drug Administration's approval is considered a formality, and trials could begin soon.

There is an ethical issue with the idea of applying gene editing to humans. Germline editing can make changes to the DNA, such as determining a baby's eye color, easier for scientists working with human embryos, eggs and sperm. Thus, gene editing include the creation of "designer babies", but also implies treatment for genetic diseases being accessible only to the wealthy minority. It is necessary to decide when gene editing may be used and when it should be banned. These issues have been raised in relation to other medical technologies, and are being revived in relation to gene editing.

While the potential benefits are there, gene editing regulations need to be debated. Gene editing has the ability to affect people's common genetic heritage, and it should not be scientists alone who determine what should or should not be allowed. The public needs information about the risks and benefits, and inclusion in the debate over acceptable standards. It is also important to consider the religious, social and cultural context when developing a regulatory framework.

In October 2015, at the closing of a meeting at the UNESCO in Paris, independent experts of the Organization's International Bioethics Committee (IBC) published the report "Updating its Reflection on the Human Genome and Human Rights." In it, the experts argue that gene editing and its "development seem to require particular precautions and raise serious concerns, especially if the editing of the human genome should be applied to the germline and therefore introduce hereditary modifications, which could be transmitted to future generations". The IBC therefore called for a moratorium on this specific procedure, at its meeting, on the human genome and human rights until it is proven safe. "Interventions on the human genome should be admitted only for preventive, diagnostic or therapeutic reasons and without enacting modifications for descendants," says the IBC, arguing that the alternative would "jeopardize the inherent and therefore equal dignity of all human beings and renew eugenics."

The report also cautions against the hidden danger of do-it-yourself genetic testing, saying that consumers who tested their own DNA using so-called Direct-to-Consumer (DTC) kits bought online, needed professional genetic and medical counselling to understand and act on the results. Such kits are widely available to consumers to carry out medical as well as non-medical tests, such as testing for ethnic ancestry. The committee called for clear regulations and information for consumers about such tests. "(...) the role of public authorities is essential to promote campaigns to inform citizens about the real or unfounded scientific basis of DTC tests and raise appropriate awareness," according to the IBC.

## **PROS AND CONS**

Today, there are over 10,000 diseases caused by mutations in a single gene (monogenic diseases) according to the World Health Organization (WHO). There are even more polygenic diseases, or diseases caused by mutations in multiple genes. Because there are so many diseases, and so many deaths as a result, there is clearly a huge need to eliminate these widespread illnesses. Currently, most of the research involving genetic editing responsible for disease concerns those of monogenic nature. Of these diseases, fourteen are being researched to find a solution through gene manipulation.

However, gene editing has seemed to become a social issue in terms of wealth and inequalities. The economic disparity between the rich and the poor will inevitably increase as a result of genetic editing. This first emerges from the sheer cost it

represents. Obviously, the cost of various procedures will differ greatly, however, all forms of genetic editing will require a great sum of money. For example, using CRISPR-Cas9 to fix a single point mutation costs \$15,000 at Yale, and that is before the cost of genotyping, which can cost up to \$2,000. At Harvard, the rate for the same procedure exceeds \$19,000. A point mutation is a very small mutation involving only a few nucleotides, yet it costs this great sum of money to alter. Additionally, it costs from \$15,000 to \$25,000 for in vitro fertilization (IVF) with gender selection for a future baby. Most people cannot afford these procedures, considering the average income is \$58,000 in the U.S. and that these procedures are not typically covered by insurance.

An additional problem is that not all procedures are successful. For example, Rosa and Vincent Costa, a couple from New York, spent over \$100,000 on seven attempts to guarantee that their child would be a girl. This would really undermine equality between individuals, and enshrine it in people's DNA. A time in which people are able to make themselves more entrepreneurial, smarter, more socially adept or more charismatic than others could lead to an even further lack of economic mobility.

Improvements to a baby's genome involving physical characteristics, would likely affect that baby's success in the future. Time after time, physical characteristics have been seen to affect success and productivity. For example, people with greater height tend to be more economically successful in life. A study done by the American Psychological Association showed that over a 30-year career, a six-foot person on average makes \$166,000 more than a five-foot five person. Additionally, nearly all Fortune 500 CEOs are over six-foot two-inches tall, even though people over six-foot-two make up only 3.9% of the world's population. Moreover, physical beauty is highly valorized in culture, as well as height, correlating it with a greater income. Daniel Hamermesh, a labor economist from the University of Texas, conducted a study to determine the correlation between beauty and income. When considering twelve other categories, such as education, age, and race, he found that men who are considered to be less physically attractive earned an average 17% less than their good-looking counterparts. In addition, he found that women earn 12% less.

### **A Potential for eugenics?**

The study of genetics has always had a strong connection to eugenics. There have been several significant eugenic movements in recent history, including in Nazi Germany, as well as in the United States. Eugenics, however, first emerged hundreds of years ago with farm animals. By the end of the 19th century, people known as "social Darwinists"

applied Darwin's theory of natural selection to human populations, pushing for the artificial selection of groups of humans, often racially. It is important to understand these past movements to draw the connection between the movements and the future of genetic editing.

The most widely known example of eugenics in recent history was with the Nazis. In *Mein Kampf*, Hitler stated that any non-Aryan race, including Jews, gypsies, and more, were inferior to the German Aryans. The Holocaust was meant to eliminate these groups of people from the gene pool. Eventually, the Law for the Prevention of Hereditarily Diseased Offspring was passed. This led to the large-scale sterilization of individuals with physical or mental disorders that were considered genetic, including schizophrenia, maniac depression (bipolar disorder), epilepsy, blindness, deafness, and alcoholism. In 1940, Hitler turned to euthanasia to eliminate the disabled instead of sterilization. Euthanasia, which is theoretically the painless killing of someone suffering from an incurable disease or disorder, became greatly twisted as a result of the Nazis' use of it. Their methods of euthanasia included gas or lethal injection and involved the murdering of hundreds of thousands of innocent citizens.

Now that the past examples of eugenics have been established, one must consider the connection between eugenics of the past and genetic editing today. The very possibility of eugenics on a smaller scale through genetic editing could make the use of larger scale, more dangerous eugenics accepted in society. As the inevitable race for the "perfect" child progresses if genetic editing becomes common, this designer baby will meet the societal standards of perfection. By giving people the ability to select traits that go against genetic and physical differences, people could inevitably be allowing intolerance against disparities.

Finally, it can create a possible confusion over the government's role. Should the government have the right to dictate how parents deal with their children's DNA? If gene editing is proved to be safe, how could governments logically justify its regulation? For example, today, the government does not control the ability of wealthier people to pay for expensive trainers to improve their fitness or expensive tutors to help their children getting admitted into top tier schools.

We can also look at genetic editing through a religious lens. Due to the current large role that religion plays in many lives, different religious viewpoints must be considered when debating the ethics of genetic editing.

## **GUIDING QUESTIONS**

- What must be done to create an international framework?
- Is the current framework sufficient? What kind of modernizations are needed?
- What kind of action can be done to prevent eugenics?
- Is there a need for alignment of the national frameworks?
- Should there be specific guidelines to prevent eugenics or illegal practices of gene editing?
- Should there be reprimands on an international stage for transhumanism or national permission for gene editing?
- How should punishment of abuses work on an international basis?
- What kind of measures can be taken to prevent threats to human beings and to inhuman selection of gene?

## **LINKS AND USEFUL SOURCES**

<https://dictionary.cambridge.org/us/dictionary/english/gene>

<https://www.britannica.com/science/gene-editing>

<https://ghr.nlm.nih.gov/primer/genomicresearch/genomeediting>