
***SCIENCE FOR ALL: EXTRATERRITORIAL
OBLIGATIONS FOR THE REALIZATION OF THE
HUMAN RIGHT TO SCIENCE***

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AAAS	American Association for the Advancement of Science
ESC	Economic Social and Cultural
ETO	Extraterritorial Obligation
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
IP	Intellectual Property
HR2S	Human Right to Science
TRIPS	Trade-Related Aspects on Intellectual Property Rights
UDHR	Universal Declaration of Human Rights
WTO	World Trade Organisation

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ABSTRACT

Since it was included in the article 27 of the Universal Declaration of Human Rights (UDHR) and subsequently in the article 15 International Covenant on Economic, Social and Cultural Rights (ICESCR), the Human Right to Science (HR2S) has been neglected for many decades. However, in the last years it has started to emerge from the darkness thanks to remarkable efforts from academia, scientific associations or institutions. Moreover, the latest thinking embraces a more inclusive interpretation of the HR2S, as it advocates access not only to material benefits but also to scientific knowledge, and promotes participation for all. The normative content that has to be deduced from article 15 encompasses four dimensions, namely, access, participation, protection and International Cooperation. The latter aspect is essential for the advancement of Science due to its nature. Science has a progressive character as it evolves while building on the scientific work of others. Furthermore, States have committed to cooperate in economic, social and cultural rights in general, and in the scientific field in particular. Following on from this, the present Human Right has a strong transnational component as it strengthens the issue of International Cooperation of article 2.1 of the ICESCR in its paragraph 4. The present contribution aims at researching how to realize the HR2S through extraterritorial obligations, as part of the duty of International Cooperation. This paper will attempt to push the Law further supporting the idea that the framework of International Cooperation gives rise to a set of transboundary obligations for States. Hence, following the Maastricht Principles on Extraterritorial Obligations in the area of Economic, Social and Cultural Rights these obligations will be applied to the HR2S following the triple typology of respect-protect-fulfil.

Key words: Human Right to Science, ICESCR, International Cooperation, Extraterritorial Obligations.

INTRODUCTION

Science is living a paradoxical moment. On the one hand, we have never been that surrounded by scientific applications and technologies as we are now. We are recipients of many centuries of scientific progress, and in the last decades we have witnessed important improvements and changes in our way of living. Science has evolved and has become more sophisticated than ever. It comes without saying, that the Internet, new technologies or health advances have marked a turning point in the way we live and we relate to others or to the environment. Moreover, economic progress and human wellbeing are largely based on scientific and technological advancements. On the other hand, Science is under threat. Religion has been the prime counterforce to Science throughout the history. It was looked upon with suspicion and fear and was constantly undermined by the prevalence of faith, authoritarianism or imposed truth. Nowadays, scientific knowledge and discoveries are threatened by other movements that put in danger and discredit the foundations of Science. Climate change denial, anti-vaccination tendencies, manipulation of scientific research for profitable purposes or unfounded rumours countering scientific evidence are clear examples of this. There is a general mistrust and fear of Science in our societies, as it is understood as an uncontrollable and remote domain at the service of economic interests of big multinationals.

At the same time, the scientific field is full of uncertainties and contentious points. First of all, there is no clear definition of what Science is, and this may challenge its independence, rigour and authority. Secondly, the present era of awareness of cultural relativism, growing power of the corporate sector and substantial inequalities between rich and poor countries in the enjoyment of Science, denotes the need for changing traditional conceptions towards more inclusive approaches. Thirdly, the issue of Intellectual Property (hereinafter IP) raises questions about the legitimacy of this regime, as it constitutes an obstacle to access Science.

Consequently, several questions may arise, namely: what do Science and Human Rights have in common? Why would we need a Human Right to Science? (hereinafter HR2S) Before recent efforts to conceptualise the present right, the relationship between Human Rights and Science used to be merely understood as the latter being either a

threat or an instrument for the realization of other Human Rights.¹ On the one hand, Science was perceived as a potential threat for Human Rights and human dignity in case of misuse. This awareness of the destructive potential of Science emerged as a consequence of the atrocities committed by the Nazis in the WWII in the name of Science or putting this at the service of war, genocide and brutality.² On the other hand, this matter was also recognised as a tool to support, achieve or implement other rights, such as the right to food or the right to health. In fact, the HR2S is closely connected to them and Science as such appears as a key element in their normative contents. However, this cannot prevent the HR2S from being understood as an autonomous Human Right in itself that triggers obligations for States and can be enforced in case of violation.

At this point it must be admitted that the “Human Right to Science” does not exist with such wording in any Human Rights Treaty or document. Instead, it is known as the “Right to Share in scientific advancements and its benefits” in the article 27 of the UDHR and as the “Right to Enjoy the Benefits of Scientific Progress and its Applications” in the article 15 of the ICESCR. This Human Right is currently under ongoing clarification and development and there are numerous efforts that advocate a more inclusive concept of it. Therefore, the term “Human Right to Science” would avoid the misconception that is just a tool for the realization of other rights, or that it only relates to the enjoyment of material scientific outcomes. Hence, this new term contributes to the idea that it is a self-standing autonomous Human Right and that does not only refer to those material applications obtained through scientifically based processes (medical treatments, drugs, technologies...). Besides, this wording helps to understand that the HR2S also encompasses access to scientific knowledge, methodologies or tools and encourages participation in scientific endeavours.³ For example Audrey Chapman, one of the first academics to embrace this Human Right, said: *In the best of all worlds the global system would distribute scientific research so that states with high-capacity conducted research and developed products for the*

¹ Audrey Chapman, 'Towards an Understanding of the Right to Enjoy the Benefits of Scientific Progress and its Applications' [2009] 8(1-36) Journal of Human Rights 2

² Stephen P. Marks, 'Out of Obscurity: The Right to Benefit from Advances in Science and Technology and Its Implications for Global Health' [2012] Proceedings of the 3rd Conference on Law, Science, and Technology: Health And Science: Human Rights And Legal Issues, Academia Sinica, Taiwan 7

³ UN, Report of the Special Rapporteur in the field of cultural rights, Farida Shaheed (May 2012) A/HRC/20/26 22-24 8

*benefits of countries that have great needs but limited capacities.*⁴ The latest line of thought has set aside that rather paternalistic approach of the North as being the donor or permitting developing countries with a lack of resources to share the benefits of Science. Conversely, this more inclusive version aims to ensure full access and participation in Science as a whole,⁵ by recognising the right to access to scientific methodologies, tools and data, in order to “do Science”. Furthermore, it seeks to empower the idea of the developing world as a partner in scientific matters, not just as a recipient or secondary actor. In fact, this Human Right can attempt to redress inequalities linked to access to scientific benefits by marginalized populations, to direct research agendas towards more social and urgent needs, to enhance opportunities for participation in Science for all, to foster cooperation between countries and assist developing States in their scientific endeavour, or to design plans to monitor and assess risks related to this field.

This thesis comes at the moment of awakening of the HR2S. Since it was first universally recognised in the UDHR in 1948, for decades this Human Right has been neglected by the international community. Therefore it remained silent and lagged behind, compared to other provisions enshrined in the mentioned document, that, in the context of Human Rights acknowledgment and awareness, were receiving further elaboration and development by academia, policy makers and UN bodies, among others. However, in recent years, influential academic efforts have been made to elucidate the normative content and meaning of the HR2S. First, UNESCO took up the issue in 2007 by starting one of the three meetings that led to the adoption of the Venice Statement on the Right to Enjoy the Benefits of Scientific Progress (hereinafter Venice Statement). After that, the American Association for the Advancement of Science (hereinafter AAAS) designed a project to join Science and Human Rights and include perspectives of American scientists in such process. Thus, it is gradually emerging from the darkness and ambiguity thanks to the contribution of Human Rights experts and scholars. Moreover, during the writing of this paper the draft of the General Comment on the article 15 of the International Covenant on Economic, Social and Cultural Rights (hereinafter ICESCR) has been discussed in the Committee on Economic, Social and Cultural Rights (hereinafter the Committee). Furthermore, the latest academic and

⁴ Chapman (n 1) 27

⁵ Shaheed (n 3) 9

institutional thinking embraces a more empowering and inclusive approach of the HR2S. They advocate Science for all and fight against privatisation and manipulation of Science. The aim of this new approach is to put Science at the service of humanity, to recognise its value and enhance possibilities for the involvement of everyone in this field. In this regard, the Committee has the opportunity to take the lead and put forward the present approach of the HR2S. Hence, the adoption of this General Comment would foster the implementation of this right in an institutional level, elucidating its scope and establishing what does this Human Right entitle right bearers for and oblige duty bearers to. Besides, it would also contribute to expand a Human Rights language within the scientific and technological field, in which, even if there are good practices and partnerships, this language is hardly used. Moreover, it will push States parties to report about their Science and research oriented policies in order to determine whether they comply with this Human Right.

As a matter of fact, this late recognition of the HR2S is not necessarily a disadvantage. When it was first included in the UDHR, neither the drafters nor the society at large could imagine the magnitude and sophistication of the advancements of scientific endeavours. Science is a volatile matter that evolves rapidly, sometimes beyond what could be foreseen. Therefore, there has to be an open and flexible attitude towards future changes, adjustments and complementing of the scope and extent of the HR2S. Now, being aware of what Science means and acknowledging its essential role in the development and economic growth of societies, it is time to set standards and clarify rights and duties inherent to it. Indeed, being a relatively young Human Right, the international community should give meaning and content to it, while embracing new interpretations and practical aspects that could shape the ongoing foundation of the HR2S.

This paper will provide a thorough analysis of the meaning, scope and normative content of the HR2S. As it is still unknown and obscure, these sections are important to clarify the features and dimensions of the present Human Right. Therefore, this paper will study its significance, legal foundation and normative dimensions and then focus on how to realize the HR2S in a global level. For that, considering the nature of this Human Right and the explicit and reinforced legal reference to International Cooperation made in the article 15 of the ICESCR, this paper will contribute to the

ongoing clarification and empowerment of the HR2S by researching extraterritorial obligations of States. The HR2S has a strong international component, and transboundary cooperation appears as an essential component for its realization. Consequently, following the Maastricht Principles on Extraterritorial Obligations in the field of Economic, Social and Cultural Rights this paper will analyse which are the obligations triggered in the case of the HR2S.

For the elaboration of this thesis, I have mostly used legal sources, academic contributions and institutional reports. The method used for researching this subject is a content analysis and interpretation of the Law, as well as a subsequent application of such analysis to the Human Right in question. Furthermore, I have attempted to push the Law further and to analyse what path should the HR2S take. That is why this academic piece has a *lex ferenda* nature. In addition, I had the opportunity to attend the discussion on the draft of the General Comment on article 15 that was held by the Committee from the 14th to the 16th of June in Geneva. Therefore, some ideas put forward in this paper have been inspired by my attendance to that debate.⁶

Many questions here presented need further consideration and study. This paper will attempt to provide the scope, legal foundation and normative content of the HR2S and to make an analysis on the extraterritorial obligations that implies. However, some issues like the balance between IP regime and the HR2S or the assessment of the indispensable scientific freedom and the protection against misuse remain uncertain. For its success, the process of elucidation of the HR2S should embrace different cultural sensibilities and background approaches. This means, that it should also incorporate perspectives of scientists, policy makers, IP law experts and civil society.

Science is not pure, coherent or perfect but is the main expression and driving force of progress that humanity has. In Human Rights, like in Science and Culture we need to go a step ahead, to wonder and push the boundaries of what it is expected. That is why the HR2S needs to explore its great potential. Even if some may complain that it is a too ambitious, extended and “creative” interpretation of the HR2S, the truth is that its content is much broader and complex than what has traditionally been considered. Therefore, ongoing efforts are simply redressing the limited scope that this Human

⁶ As it was a closed meeting, I am not allowed to make any direct reference to the individual expert member that exposed the ideas in each case.

Right used to have and being loyal to the greatness of the two articles in which is enshrined.

CHAPTER ONE

SCIENCE AND HUMAN RIGHTS

Science is an integral part of the human essence. It is linked to the very idea of creativity and ingenuity and thus, it is somehow key to evolution and development of the human race. As human beings, we ask ourselves questions, we seek to improve our lives, to satisfy curiosity and to create a more sophisticated, modern, safe and comfortable world for us. Therefore, Science is not only the answer but also the question. To put it in another way, Science is not only linked to the outcomes we obtain from it. Instead, it is a process of discovering the unknown, through wonder, curiosity and imagination. There is no human being in this world that does not have those three faculties. We wonder about ourselves, who we are, why we exist, what the planet in which we live is like... and we seek answers, meaning, knowledge. Science is not for scientists, Science is for all. For all those who want to experience, discover, know or use. Science is an ally for developing human capabilities, for making us freer and bringing us closer to the truth.

Moreover, it is also the driving force for development and economic growth. Science's contribution to societies can be considered twofold. On the one hand, the population at large continuously benefits from its outcomes, which positively affect their health, living style or understanding of the world. Following this idea, technological innovation can foster human development in two ways. First, it can contribute to the enhancement of human capabilities, by improving living conditions and participation of peoples in the life of their communities. Second, on a more general level, scientific and technological advances positively impact the economy and wealth of a country and can address poverty in both favoured and less favoured States.⁷ In this regard, scientific advances underpin economic growth and have a positive impact on the overall wellbeing of societies. On the other hand, promoting scientific processes as such contributes to the enhancement of knowledge, and this pushes for further specialisation and mastering of scientific activity. In this sense, knowledge attracts more knowledge; thus, a knowledgeable and advanced scientific community can raise awareness and

⁷ Chapman (n 1) 9

encourage the improvement of institutions and education systems.⁸ Science creates jobs and wealth, directly for professional scientists and indirectly for the lay population, boosting a better trained human capital at a nationwide level. Also, the discovery of a scientific output is just the beginning of the long life that application may have, as it will probably need further study and professionalization and therefore, be the engine of employment and growth.

Furthermore, Science is also undoubtedly linked to democracy. In this regard, the statement *No Science, no evidence, no truth, no democracy*⁹ clearly represents that connection. Democracy is considered one of the greatest values of societies, and requires, among others: rule of law, respect for Human Rights and fundamental freedoms, periodic and fair elections and a free and effective media. The role of Science in the implementation and enhancement of these elements is vital for various reasons. First, Science is relevant when guiding policy making and formulation of laws. Scientific data can help towards a better comprehension of the realities of our context and thus, observance of Science is necessary for political and economic decision-making processes. Second, a free and trustful media can spread scientific information important for personal decision-making by citizens, for example, regarding climate change, food or health issues. Science leads to truth and this is essential for both, policy makers and citizens, in order to be consistent with reality and to build our lives based on evidence, rather than on incorrect assumptions or degrading traditions. Third, the enhancement of Science can also contribute demystifying and combating unfounded prejudices or traditions¹⁰ and having an informed and knowledgeable population able to distinguish between evidence and myths, or reason and faith, among others.

Nevertheless, it is necessary to affirm that misuse of Science can constitute a threat to Human Rights and pose a serious danger to the wellbeing of peoples. Science can be used for good or for evil, and there are numerous examples, both nowadays and

⁸ For example, a high-level scientific community would pursue and guarantee a correct training and education for future scientists. This would also have a positive impact on higher education systems of other domains such as Law, Politics... Therefore, it would lead to a general expansion of knowledge and proficiency of education.

⁹ Carol Linnit, Academic matters, 'Harper's attack on science: No science, no evidence, no truth, no democracy' (*Academic Matters*, May 2013) <<http://academicmatters.ca/2013/05/harpers-attack-on-science-no-science-no-evidence-no-truth-no-democracy/>> accessed 6 April 2017

¹⁰ This idea was presented by one of the members of the Committee during the debate on the draft of the General Comment on the article 15.

throughout history, that can illustrate this. In this regard, there is a broad ongoing scientific debate that touches upon various matters regarding its meaning, ethical issues or potential risks. In this chapter, this paper will attempt to answer some of these in a concise manner in order to elucidate the scope of the HR2S. In other words, this analysis will ultimately help to understand the complexity of this Human Right, by answering the question: What is Science in the Human Right to Science? For that purpose, I will define this concept, interpret its scope and clarify certain doubts that deserve attention.

What is Science?

One of the first questions that we can ask ourselves is the following: what is Science? Difficulties arise when trying to define this concept. This question still generates a spirited debate, which enriches its evolution and its adaptation to changing realities. In other words, talking about Science from a philosophical point of view contributes to elucidating the inherent features of the scientific realm, to distinguish between what is Science and what is not, and provides rigour and sophistication to this domain. Nonetheless, this paper will not attempt to make a philosophical contribution to the concept of Science, instead, it will simply dwell on some points or characteristics whose elucidation will facilitate the understanding of the scope of the HR2S.

Therefore, for the meaning of Science, I will rely on the work carried out by UNESCO, which defines it in the following way:

Whereby mankind, acting individually or in small or large groups, makes an organized attempt, by means of the objective study of observed phenomena, to discover and master the chain of causalities; brings together in a co-ordinated form the resultant sub-systems of knowledge by means of systematic reflection and conceptualization, often largely expressed in the symbols of mathematics; and thereby furnishes itself with the opportunity of using, to its own advantage, understanding of the processes and phenomena occurring in nature and society.¹¹

¹¹ UNESCO, 'Recommendation on the Status of Scientific Researchers' (1974) 1

As it can be seen, Science and knowledge are innately connected. Science is the process of discovering, applying and building up knowledge. The key issue that branches off this field from others is the concept of “process”, referred to “systematic reflection and conceptualization” in the aforementioned definition. This comes to say that not every process of acquiring knowledge is scientific. Hence, disinterestedness, universalism, communism and organized scepticism are the essential elements of the scientific endeavour.¹² Every hypothesis claiming to be so, has to be submitted to a thorough scrutiny in order to ascertain whether it falls within the parameters of the universal scientific status. But what are those parameters? In this regard, while defining Science and the criterion to be elevated to the scientific domain can be a difficult endeavour, it is not so to circumscribe what falls beyond its scope. Thereby, Science is not a revealed truth or an imposed authoritarian opinion. Neither has to be equated to myths, traditions or credulity. Scientific process diverges from faith, irrationality and obscurantism.¹³ Yet, at the same time, it is continuously threatened by all of them. Thus, the importance of clearly delimiting Science and bringing it to the service of humanity is crucial in order to safeguard its objectiveness, independence and value. Hence, the international community must acknowledge the relevance of Science and work together to safeguard its rigor and integrity. This task cannot be achieved without endowing this field with a Human Rights language and involving the international scientific community and civil society in such procedure. On this subject, boosting and embracing the HR2S can contribute to upgrading Science and overcoming existing uncertainties.

Is traditional knowledge part of Science?

In this point, a second doubt appears regarding the common issue of cultural relativism and Western imperialism: is Science really universal? What status does traditional knowledge hold? The answer is also contentious and would give rise to an intense debate that cannot be included in this paper. However, for the purpose of understanding the scope of the HR2S, I will attempt to give some ideas to this question. Science is a universal language that has nothing to do with imposing occidental values

¹² Robert K. Merton, *The Sociology of Science* (University of Chicago 1973) 268 (as cited in Chapman (n1)6)

¹³ This idea was defended in the Committee by several experts during the debate on the draft of the General Comment.

or practices. As stated above, wonder, curiosity and creativeness are essential parts of every human being, no matter where he or she is born. Therefore, the act of applying these skills in order to seek answers has the same cultural meaning in every corner of the world. The methods used for that can be different, but to be called “scientific” they all need to meet some exigent requirements proposed by this discipline itself. If we understand it in this way, there is no justification that supports the alleged imperialistic nuance and Occidental nature of Science. Every person conducting research that is loyal to those requirements is doing Science as such, not “Occidental” or “Western” Science. Moreover, a different conception from this, apart from resulting paternalistic, perpetuates the gap between the rich and poor by suggesting that Science is mainly for the North, while Southern populations can keep their pseudoscientific traditions for themselves.¹⁴ Again, Science is for all. Another different thing is how private companies, Intellectual Property Regimes or other actors have distorted this idea, when, in the name of Science, they are fuelling its dark side by obstructing access and enjoyment for every person equally, and directing research agendas to solely profitable purposes. This manipulation of the connotation of Science has been effective in generating distrust and concern. Only an empowered and widely recognised HR2S can put this discipline at the service of humanity and redress the breach of trust.

Coming back to the idea of traditional knowledge, this is already recognised by the Human Right to Culture as it relates to customs, rituals and popular knowledge of a community. That wisdom has to be protected and promoted as the cultural identity that belongs to certain peoples, but cannot be automatically compared to Science. For instance, in the case of indigenous communities, the UN Declaration on the Rights of Indigenous Peoples refers to the concept of “traditional cultural expressions” stating that:

Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control,

¹⁴ This idea was defended in the Committee by various members.

*protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.*¹⁵

Consequently, traditional knowledge (indigenous or not) does not fall within the scope of Science at first glance. But it can do so. For that reason, it has to be submitted to scientific analysis with the same rules and procedures governing universal Science.¹⁶ Hence, there may be some components of those cultural expressions of sciences that are proved to be accurate and meet those aforementioned scientific requirements. In this regard, the HR2S will have to facilitate access by traditional knowledge to that universal scientific dialogue in order to ascertain their truthfulness and accuracy¹⁷.

Basic Science and Applied Science

Another important point worth mentioning in order to clarify the conceptual scope of the HR2S is that scientific efforts are not always intended for something specific, or applied to achieve a concrete result previously identified. Instead, acquiring knowledge as such is also an objective and an end in itself. Hence, this idea of Basic Science is an essential part of this discipline, which should be preserved and guaranteed. In other words, Basic Science aims to expand knowledge of a concrete scientific area, while Applied Science uses that knowledge and practices to find solutions to specific problems or challenges. Basic Science has led to discoveries such as the first human cancer gene, the first chemical synthesis of penicillin or the *Prochlorococcus*, the most abundant photosynthetic species on Earth.¹⁸ Richard Schrock, a Professor of Chemistry who won the Nobel Prize in 2005, vindicates the pursuance of curiosity and knowledge rather than only focusing on research that tackles the world's problems, stating that: *The value of basic research is you discover something you didn't expect, that nobody expected. And it's where almost everything we now expect came from.*¹⁹ However, Basic Science is not only reserved for those developed countries that can afford to save some resources in order to do so, while developing countries must just conduct research

¹⁵ Declaration on the Rights of Indigenous Peoples, UNGA Res. 61/295 (13 September 2007) article 31

¹⁶ There was a discussion on the status of traditional knowledge and its relation with Science in the debate on the draft of the GC. Most of the experts were in line with the idea reflected in this paper.

¹⁷ This potential component of the Hr2S was mentioned during the debate by a member of the Committee

¹⁸ Liz Karagianis, 'The Brilliance of Basic Research' (*Spectrum*, Spring 2014) <<http://spectrum.mit.edu/spring-2014/the-brilliance-of-basic-research/>> accessed 3 May 2017

¹⁹ Ibid

targeting their specific needs. This division may seem logical but perpetuates the idea that first class States can do Science for humanity, can pursue the idea of conquering knowledge and researching about a vast range of disciplines; while second class States, in other words, poor States, are confined to research solely concerning their contextual problems. To avoid this conception, every State, rich and poor, should devote enough economic and technical resources to the enhancement of Basic Science. Acknowledging this, UNESCO has created the International Basic Sciences Programme in order to reinforce governmental commitments to Basic Science and scientific education through International Cooperation.²⁰ As said before, basic research is the source of unexpected discoveries, and this should not be a privilege of wealthy States. Instead, there should be joint partnerships that recognise the role of developing states in doing this kind of Science.

Which fields does Science encompass?

There are two other questions that may arise regarding the concept of Science: one is whether it encompasses only natural sciences or also social sciences, and the other one, how it relates to technology. Firstly, Science is the process of moving forward through reasoning, thus, any intellectual domain that can be justified by evidence and backed up by thorough examination can be considered to fall within the scope of the scientific condition²¹. Therefore, history, sociology, political sciences and similar fields that are based on empirical research and data analysis have to be treated as Science, on the same level as physics, biology or pharmacology. Secondly, concerning the issue of technology, this has to be considered as an application of Science. It may be said that it is one of its most preponderant and widespread applications, but still, technology cannot be equated to Science or considered a different field. In sum, technological applications are one kind of material outcomes of the scientific process, together with medicines, treatments or knowledge.

²⁰ UNESCO, 'International Basic Sciences Programme' (*UNESCO*, August 2008) <<http://www.unesco.org/new/en/natural-sciences/science-technology/basic-sciences/international-basic-sciences-programme/>> accessed 1 May 2017

²¹ This was proposed by a member of the Committee during the debate.

What are the benefits of scientific progress/advancement?

So as to understand the HR2S, it is essential to clarify what the word “benefits” means in both of the articles in which this Human Right is enshrined. Article 27 of the UDHR refers to “share in scientific advancements and its benefits” whereas article 15 of ICESCR says that everyone has the right to “enjoy the benefits of scientific progress and its applications”. One can imagine that “benefits” relates to the goods, the outcomes deriving from the scientific process that affects our societies. But, which kind of benefits fall within this term?

In an attempt to involve the scientific community in the endeavour of clarifying the HR2S, the American Association for the Advancement of Science (AAAS) has created a coalition that links Science and Human Rights. Concerning this, scientists from various fields were asked to identify the most relevant benefits of Science. Among all, these were highlighted: health, advancing knowledge, comprehension of environmental issues, education and training and the empirical basis for the understanding and correct design of laws, policies and programs.²² Hence, benefits of Science should not only be understood as outcomes or applications related to multiple fields, but they also encompass the know-how of scientific processes, methodologies, data and tools linked to this discipline.²³ In other words, knowledge as such is one of the most important benefits of Science. As we will see later, acknowledging this has an essential impact on the way we understand the HR2S, because it comes to say that there is a right to access knowledge linked to scientific methodologies, data, tools, processes and so on.

Furthermore, scientific advancement is not measured in terms of how far its applications can improve the welfare of people, but in innovativeness and forward-looking character. Accordingly, it must be taken into account that Science is not only intended to improve the wellbeing of people; instead, its ultimate goal is in fact the pursuit of knowledge.²⁴ Conversely, it is also used for military purposes, war, processing of synthetic drugs, cybercrimes and advancement in controversial issues, such as human cloning or genetically modified organisms. In view of this, are the

²² AAAS Science and Human Rights Coalition, ‘Defining the Right to Enjoy the Benefits of Scientific Progress and Its Applications: American Scientists’ Perspectives’ (2013) 2

²³ Shaheed (n 3) 22-24

²⁴ Chapman (n 1) 7

outcomes of such practices also considered benefits of Science? The benefits of Science that this Human Right encompasses are those linked to the idea of dignity of human beings. Following this, the HR2S does not pretend that all efforts and resources should be directed to philanthropic purposes. Instead, it comes to say that there should be enough funding, resources and education directed to such research that aims to enhance knowledge and eventually satisfy essential needs or wishes of humanity.²⁵

Actors and decision making

At this point, it is important to mention that the main stakeholders of Science are the scientific community, States, private corporations and the population at large. Besides that, in the international arena, we can highlight other actors that deserve considerable attention like academia, UNESCO and the Committee on Economic, Social and Cultural Rights (also referred in this paper as the Committee). Academia has played an important role in boosting and clarifying the HR2S in the last decade. For its part, UNESCO has the mandate to “*advance and promote Science in the interests of peace, sustainable development and human security and well-being.*”²⁶ Among their work, we can highlight the development of several programs to stimulate scientific cooperation, the establishment of scientific bodies (such as CERN), building capacity in Science and promoting dialogue between scientific community and policy makers.²⁷ Finally, the Committee is the treaty body now in charge of revitalizing this Human Right by adopting a General Comment and catalysing its recognition in the international law arena.

Once mentioned this, an essential concern appears regarding who can decide on matters like goals, allocation of resources, policies, targets or conflicts between scientific affairs and other Human Rights.²⁸ On the one hand, in order to ensure its compliance with Human Rights, Science cannot be left to the discretion of private

²⁵ This argument is inspired by my attendance to the session of the Committee concerning the debate on the General Comment.

²⁶ UNESCO, 'Natural Sciences' (UNESCO) <<http://www.unesco.org/new/en/natural-sciences/about-us/about-us/>> accessed 6 April 2017

²⁷ idem

²⁸ UNESCO, 'Venice Statement on the Right to Enjoy the Benefits of Scientific Progress and its Applications' (2009) paragraph 7

corporations or the scientific community. Instead, it needs to be endowed with principles and a regulatory framework. On the other hand, scientific matters cannot be decided merely on a national scale, because this discipline has an important international component and needs to be addressed on an international level. Neither can the lay population, academia nor the branches of the UN unilaterally resolve the problems previously exposed. This is because the actors previously mentioned (States, private corporations and scientific community) are the ones actively conducting research and dealing with funding; therefore, without their implication, the work done by academia, UN or civil societies would have no real operational value.

In conclusion, what is clear is that only the combined efforts of international actors, States, private corporations, scientists and general population supporting decision making can frame and realize the HR2S. In this regard, this paper will try to elucidate the legal nature and extent of those international efforts in order to implement the HR2S and contribute to the development of States. For that purpose, first its legal foundation and normative content will be analysed and then, we will go further in determining the path the international community should take in order to foster this Human Right through extraterritorial obligations.

CHAPTER 2

THE HUMAN RIGHT TO SCIENCE

In the previous chapter, the scope and the material subject of the HR2S have been examined, in order to better understand the meaning of this Human Right. For that purpose, the concept and features of Science and its relationship with the Human Rights sphere have been studied. At this point, this paper will analyse the legal foundation of the HR2S, namely, article 27 of the UDHR and article 15 of the ICESCR. In order to build up a coherent and loyal interpretation of their meaning and objectives, I will provide an overview of the reasons why these provisions were included first in the UDHR and subsequently in the ICESCR. Even if it is just a supplementary means of interpretation,²⁹ the aim of the drafters of the UDHR for the insertion of this Human Right during the *travaux préparatoires* of the drafting of such document, can help us to elucidate its real understanding and scope and to redress the limited significance that it has been given in recent decades.

Moreover, this section will also elaborate on the history of the elucidation process that the HR2S has received lately, noticing that this enlightenment has been boosted in the last few years. All those academic contributions that have shaped this Human Right, together with the General Comment, will undoubtedly empower the HR2S putting an end to the obscurity and abandonment it has received for too long.

2.1.- LEGAL FOUNDATION

The relationship between Science and Human Rights is not a recent one. In fact, it was studied and developed in the late 1940, in the context of international Human Rights law-making that led to the adoption of the UDHR. Yet, in William Schabas words, “*it has remained very much of a sleeping beauty*”. Over the decades, there have been numerous declarations, mostly under the auspices of UNESCO, aiming to highlight the importance of Science, the establishment of scientifically based policies and the need to regulate its activity in an attempt to contain its inherent risks. However, even if the usefulness and consequences of Science can be inferred from numerous

²⁹ Vienna Convention on the Law of Treaties, (adopted 23 May 1969) 1155 UN Treaty Series 18232 Article 31

provisions and legal instruments, it has been acknowledged as a Human Right in two major documents of the international legal sphere: article 27 UDHR and article 15 of the ICESCR. These two documents accord a Human Rights category to it, that goes beyond a mere international recognition, as it is granted the full dignity of being an essential right for human beings.

2.1.1 Article 27 UDHR

(1) Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.

(2) Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author³⁰.

The UDHR is the cornerstone of International Human Rights Law and it encompasses 30 articles recognising essential universal Human Rights. It was adopted in 1948 and the drafters, under the leadership of Eleanor Roosevelt, made a great effort to identify the inherent rights that every individual owns in order to live a life with dignity. As for the HR2S, there were three main reasons for its inclusion in the UDHR. On the one hand, drafters wanted to ensure that the enjoyment of Culture and Science was possible for all, not discriminatory on an economic basis.³¹ On the other hand, there was great awareness of the negative effects of Science and its potential destructive character³². Therefore they assumed that the recognition of the Human Rights to Science and Culture, together with the creation of an international agency in charge of promoting it (UNESCO), could enable an affordable enjoyment of these fields and a further regulation to control the use and expansion of Science. Finally, the American Declaration on the Rights and Duties of Man, which was adopted shortly before, also included a similar provision, that read as follows: “*every person has the right [...] to participate in the benefits that result from intellectual progress, especially scientific*

³⁰ Universal Declaration of Human Rights (adopted 10 December 1948) UNGA Res 217 A(III) (UDHR) article 27

³¹ Lea Shaver, 'The Right to Science and Culture' (2010) 1 Wisconsin Law Review 154

³² Chapman (n 1) 5

discoveries.”³³ In conclusion, the drafters believed that a dynamic and accessible Science could unite the international community, by fostering cultural understanding and promoting peaceful relations aiming to pursue the same objectives.³⁴ Therefore, it was enshrined in article 27, together with the right to participate in the cultural life of a community and moral rights of authors, which was not exempt from controversy. In fact, there are certain points that were especially contentious for the drafters and that still raise doubts, namely, the purpose of Science, the connotation of “participation” in Science and the inclusion of moral rights in the same provision.

First of all, the UDHR does not explicitly address the direction that Science should take, in other words, to what ideal or value Science should serve³⁵. Hence, the Soviet delegate of the drafting unsuccessfully proposed adding the following text to the provision: *the development of Science must serve, the interests of progress and democracy and the cause of international peace and co-operation*”³⁶ There was a fear that due to the abstract nature of the words “progress” and “democracy”, this fragment would eventually be understood as putting Science at the service of politics.³⁷ As Cuba said in the discussion on the draft in the General Assembly of the UN: *“Science should remain entirely free and the State should not interfere at any stage in scientific or literary creation. On the contrary, it was democracy which should be placed at the service of Science, the latter itself the servant of truth.”*³⁸ Consequently, despite the contemporary suspicions and sensitivities towards Science, it was preferred to stress the idea of Science free from ideologies and politics. Nevertheless, later, the Proclamation of Teheran³⁹ and the UN Declaration on the Use of Science and Technological Progress

³³ American Declaration of the Rights and Duties of Man (adopted April 1948) OAS Res AG/RES. 1591 (XXVIII-O/98) article 13.

³⁴ Shaver (n 31) 141

³⁵ William A Schabas, 'Looking back: How the Founders Considered Science and Progress in their Relation to Human Rights' (2015) 4 European Journal of Human Rights 505

³⁶ Johannes Morsink, *The Universal Declaration of Human Rights: origins, drafting, and intent* (University of Pennsylvania Press 2012 (as cited in Schabas (n 35) 505

³⁷ Official Records of the General Assembly, (meeting of 20 November 1948) UNGA Third Session 617 (as cited in Schabas (n 35) 511).

³⁸ Ibid

³⁹ Proclamation of Teheran (22 April to 13 May 1968) Final Act of the International Conference on Human Rights, Teheran, U.N. Doc. A/CONF. 32/41 Parag. 18: *While recent scientific discoveries and technological advances have opened vast prospects for economic, social and cultural progress, such developments may nevertheless endanger the rights and freedoms of individuals and will require continuing attention.*

in the Interests of Peace and for the Benefit of Mankind addressed the issue of both the dangers and the opportunities of Science and Human Rights.

Second, doubts arise as to whether an implicit connotation of participation can be deduced from the wording of the article. This issue is especially important to back up the latest interpretation of the HR2S as it includes a dimension that allows everybody to participate in scientific activities. *A priori* it seems that the expression “share in” denotes a rather passive involvement in Science, just to receive and enjoy the material outcomes of Science. Nevertheless, the HR2S cannot be understood in such a limited way. In fact, the French and Spanish versions of this document use the word “participate” as such.⁴⁰ Moreover, the suggestion of René Cassin to expressly recognise the idea of participation of everyone in scientific progress was rejected because it was understood that the term “Cultural life” already includes Science; therefore, the right to participate in cultural life also encompasses the right to participate in the scientific field.⁴¹ This concept will be further addressed in the next chapter, when the normative content of the HR2S will be analysed.

Third, the HR2S is balanced by the rights of those entitled to a fair return for their scientific discoveries.⁴² The inclusion of the protection of moral rights of authors in the second paragraph has been a source of some controversy. It seems that two counter ideas were placed together in the same article, as moral rights can impose barriers to the access and expansion of Science. It should be clarified that moral rights cannot be confused with the protectionist monopoly that Intellectual Property (IP) rights constitute. In this regard, IP rights are exclusive privileges that cannot be equated with Human Rights. They encompass copyrights, patents, plant breeder’s rights, trademarks, industrial designs and geographical indications. Instead, moral rights should be understood as the right of authors to receive recognition of their work and to be rewarded for it.⁴³ Thus, they are Human Rights as everyone that creates or invents something is entitled to benefit from that protection. According to Johannes Morsink, who made an exhaustive analysis of the *travaux préparatoires* of the drafting of the UDHR, the possibility of conflict between access to Science and Culture and the

⁴⁰ French version: *participer au progrès scientifique et aux bienfaits qui en résultent*. Spanish version: *participar en el progreso científico y en los beneficios que de él resulten*.

⁴¹ Schabas (n 35) 507

⁴² Ibid

⁴³ Shaver (n 31) 150

protection of authorship was not considered by the drafters.⁴⁴ Moreover, the overlooking of the HR2S in contrast with the expansion received by moral rights was not foreseen either. In this regard, the HR2S, as the guardian of a Public Good of humanity that Science is, can be a yardstick to balance the disproportional privileges that IP rights constitute at the expense of violating essential Human Rights. This paper will not thoroughly analyse the clash between IP regime and the HR2S, it will merely present the latter as a Public Good as suggested by Professor Lea Shaver.⁴⁵

2.1.2 Article 15 ICESCR

1. The States Parties to the present Covenant recognize the right of everyone:

(a) To take part in cultural life;

(b) To enjoy the benefits of scientific progress and its applications;

(c) To benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

2. The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for the conservation, the development and the diffusion of science and culture.

3. The States Parties to the present Covenant undertake to respect the freedom indispensable for scientific research and creative activity.

4. The States Parties to the present Covenant recognize the benefits to be derived from the encouragement and development of international contacts and co-operation in the scientific and cultural fields⁴⁶.

The International Covenant on Economic, Social and Cultural Rights (ICESCR) is one of the core instruments of International Human Rights Law. Together with the Covenant on Civil and Political Rights (ICCPR), this document develops the provisions

⁴⁴ Shaver (n 31) 149

⁴⁵ Ibid

⁴⁶ International Covenant on Economic, Social and Cultural Rights (adopted 16 December 1966, entered into force 3 January 1976) UN Treaty Series 2200A (XXI) (ICESCR) Article 15

endowed in the UDHR and makes them binding and enforceable. According to Maria Green, who undertook a review of the drafting history of article 15 of the ICESCR, the inclusion of the HR2S was not automatic, as it was repeatedly excluded in various sessions.⁴⁷ However, it was finally included thanks, in part, to the work carried out by UNESCO.⁴⁸ It must be clarified that the HR2S has its basis in all article 15, not just in paragraph 1(b). In other words, it is important to acknowledge that the legal content of this Human Right has to be inferred from the whole provision, as it is spread throughout the article. This precision is also determining in relation to making a loyal and complete interpretation of the HR2S. The normative content of this provision will be analysed in detail in the second chapter, in order to present the rights and obligations that it encompasses and to analyse its dimensions. For the moment, general features of this provision will be presented. First, some important points for the understanding and interpretation of the HR2S will be addressed. Then, its nature as a cultural right will be analysed and finally, this section will conclude with a defence of its autonomous and independent character.

Interpretation of article 15

These are important hints that should be taken into account when attempting to understand the HR2S enshrined in article 15:

- Taking part in cultural life also encompasses the right to take part in Science, as this is a component of Culture. Therefore, the right to participate in Science can be deduced from paragraph 1(a). Moreover, Farida Shaheed, Special Rapporteur in the field of cultural rights, has stated that article 15 should be read together with article 1 of the Covenant about self-determination and participation.⁴⁹
- Enjoyment of the benefits is much broader than mere access to the material outcomes of Science. As has been concluded after examining the concept of benefits, apart from the latter, it also includes access to scientific knowledge,

⁴⁷ Green M, *Drafting History of Article 15(1)(c) of the International Covenant on Economic, Social and Cultural Rights* (2000) UN Doc. E/C. 12/2000/15 5

⁴⁸ Ibid 6

⁴⁹ Tania Rabensandatana, 'Q&A: Farida Shaheed on the Human Rights to Science' (*SciDevNet*, October 2013) <<http://www.scidev.net/global/human-rights/feature/q-a-farida-shaheed-on-the-human-right-to-science.html>> accessed 20 March 2017

access to know-how and data, among others. Therefore, individuals have access not just to applications, but also to all those tools that would enable them to actively participate in scientific endeavours. In words of Farida Shaheed: *“Access to science must include participation in the whole scientific process — it's not just the end product. You have the scientific process, then the knowledge that's created, then the applications. All of those things make up the right to science”*⁵⁰.

- The extent of the notions of conservation, development and diffusion require further academic clarification in order to fulfil their great potential contribution to this Human Right. As will be seen in the following chapter, these concepts are transversal to the other dimensions that comprise the HR2S and can support the underlying idea of Science for all.
- This provision makes reference to both scientific freedom and the limitations that should be placed upon the scientific activity in order to manage possible dangers.
- Article 15 expressly mentions the need to enhance International Cooperation in relation to Science. This paragraph should be read together with article 2.1 of the ICESCR about the nature of the obligations of the Covenant. The analysis of the dimension of International Cooperation in the context of the HR2S will be studied in depth in the last chapter in order to justify the extraterritorial obligations concerning the HR2S.

Cultural right

There is no doubt that due to its nature and its inclusion on the ICESCR, the HR2S is an Economic, Social and Cultural Right and, more concretely, it falls within the category of Cultural Rights. The inclusion of the HR2S in the same provision as the Human Right to Culture is not fortuitous. This is so because they are both essential expressions of human evolution that arise from creativity and *“people’s ability to aspire.”*⁵¹ In this regard, Farida Shaheed, the Special Rapporteur in the field of cultural rights, states that both Science and Culture allow people to think critically, to

⁵⁰ Ibid

⁵¹ Shaheed (n3) 7

investigate, as well as to challenge the conception they have of themselves and about the world they live in, by contributing to its flourishing and development with ideas, expressions and innovations.⁵²

One of the features of being a cultural right is the inherent connotation of freedom that it comprises. One can choose whether to participate in the cultural life of one's community and to follow the traditions, customs, language and so on, or, conversely, not to do so. The idea behind the HR2S is the same: one can choose to become involved in Science, to access and use scientific material outcomes, or not to do so. There is an idea of freedom and consent that has to be respected. In addition, there is also a right to reject Science, but only by means of an informed, mature and free decision⁵³. This is when the HR2S acquires special relevance. Quality Science has to be accessible, affordable and available for all. People need to be informed about scientific issues concerning their lives, as well as about the consequences of "using" or "not using" Science. Hence, only a powerful HR2S can guarantee that these issues will be fulfilled. Once these conditions have been met, a person can freely choose not to participate in scientific affairs, not to use technology or not to be subject to a particular medical treatment, for instance.

Autonomous right

Science has a crucial impact on the realization of other rights, but the HR2S cannot be considered to be simply an instrument for their enjoyment. In other words, the HR2S cannot be justified merely for the influence it exercises upon other rights. As stated before, it has traditionally been linked to the Human Right to Health and the Human Right to Food, as a tool and support for the realization of these two. However, we must acknowledge the independent and autonomous nature of the HR2S, which triggers its own rights and obligations and can be enforced in case of violation. In sum, the HR2S has its own self-sufficient normative content that goes beyond the mere complementing of the content of other Human Rights.

⁵² Ibid 6

⁵³ These ideas have been inspired by my attendance to the discussion of the draft of the GC in the Committee.

CHAPTER 3

NORMATIVE CONTENT OF THE HUMAN RIGHT TO SCIENCE

After elucidating the conceptual meaning and legal foundation of the HR2S, this paper will now focus on the legal content, namely, the rights and obligations that this Human Right implies. For that purpose, article 15 of the ICESCR will be taken as a reference. As we have said before, the legal content of the HR2S is deduced from all the article and not only from one of its paragraphs. The normative content will be divided into four different dimensions: access, participation, protection and international cooperation. Additionally, the issue of conservation, development, and diffusion of Science will also be addressed, as a transversal element of the previous dimensions. The aim of this chapter is to make a precise study of the specific content of this Human Right, based on the main contributions from academics in the last few years.⁵⁴ Once the whole legal structure is presented, this paper will later concentrate on the elucidation of extraterritorial obligations arising from the dimension of International Cooperation.

2.1- Normative dimensions of the HR2S

The HR2S is not a right for scientists. Science is for all, and thus, everyone holds this Human Right. Hence, the population as a whole is entitled to the enjoyment of this universal Human Right, which can be done individually or collectively.⁵⁵ It should be pointed out that in some of its parts the HR2S appears to have a narrower personal scope, as it is targeted to the scientific community, for example, when protecting their right to scientific freedom or free association. Nevertheless, it must be argued that as a last resort, it is the society at large who benefits from those rights specifically aimed at scientists, because humanity as a whole is the recipient of Science. Therefore, a legitimate and fair scientific process has positive effects on the outcomes and advancements, which are undoubtedly enjoyed by the society in general. Moreover, bearing in mind that everyone, whether amateur or professional, is entitled to “do

⁵⁴Starting with William A. Schabas and Richard Pierre Claude, pioneers in drawing attention and upholding this right. It is also important to highlight the work of the Special Rapporteur Farida Shaheed, American Association for the Advancement of Science and UNESCO. Other essential commentators: Audrey Chapman, Lea Shaver, Yvonne Donders, Christian Timmermans, and Mikel Mancisidor.

⁵⁵ Venice Statement (n 28) 7

Science” this apparently exclusive target acquires a broader scope. Furthermore, this Human Right has a strong inter-state component, but in last resort, the society at large is, again, the main right holder. Concerning duty bearers, both States and non-State actors have significant importance in the scientific endeavour and therefore, bear responsibilities. Non-State actors, such as multinationals and scientific associations are key sponsors and conductors of research.. Moreover, States have obligations regarding actions or omissions of non-State actors that have a negative impact on the enjoyment of esc rights. This issue will be further addressed in the last chapter, when studying the extraterritorial obligations to protect in the context of the HR2S.

As stated before, in order to analyse the normative content of the HR2S, this will be divided into different spheres, namely: access, participation, protection and international cooperation. As transversal factors of these four dimensions, particular attention will be paid to article 15.2 about the issue of the enabling environment for conservation, development, and diffusion.

2.1.1 Access to Science

In Professor Lea Shaver’s words access is meant to be the *touchstone concept of the right to science*.⁵⁶ In a broader perspective, access to Science can redress shortcomings and inequalities of globalization, and combat poverty, regression, or exclusion.⁵⁷ It has to be intended for Science and benefits as a whole, not just for some applications, areas or stages of the scientific endeavour.⁵⁸ Furthermore, it has to be understood as access to both services or products (outcomes) and to scientific knowledge and processes (methodologies, data, tools...). As has been pointed out before, traditionally only the first trait was recognised, which is why the HR2S was equated merely to the right to have access to technologies, drugs or other scientific advancements. That limited scope is no longer defended in academic and institutional settings. Furthermore, the recognition of the access dimension is especially important regarding marginalized populations, such as people living in poverty, the elderly,

⁵⁶ Lea shaver (n 31) 169

⁵⁷ Venice Statement (n 28) 4

⁵⁸ Shaheed (n 3) para. 26

women, children, and people with disabilities⁵⁹. Moreover, access to Science would also imply measures to identify and target priority needs of those more vulnerable sectors.⁶⁰ In other words, steps should be taken in order to direct the necessary funding and infrastructure towards conducting appropriate research for the purpose of addressing specific needs of marginalized populations.

If Science is for all, and if the HR2S has a universal scope, does that mean that there is a right to access all by all? The general rule should be affirmative, but this has to be qualified. The concept of access is a twofold notion: on the one hand, it comprises access for the lay population; and, on the other hand, access for scientists. In both cases, the principles of non-discrimination, affordability and physical availability have to be guaranteed. Therefore, access connotes something different depending on the subject seeking it. It is not the same for a lay citizen that wants to enjoy an application, satisfy curiosity, or be informed, as for a scientist aiming to conduct research and expand knowledge based on existing theories and data. However, it should be mentioned here, that not only professional scientists have access to technical information, but that an individual with motivation and interest in participating in Science (the concept of Citizen Science will be explored later) must also have access to such technical knowledge. What is more, the relation of a person to Science is not fixed: depending on personal circumstances, educational skills or specific interests one can place oneself in a different point that goes from a mere consumer of scientific outcomes to a professional scientist.⁶¹

Following this idea, in the frame of the AAAS, Jessica Wyndham and Margaret Vitullo have elaborated on the concept of access and have created a *continuum of access* in order to present the different aspects that this dimension has. It is divided into three distinct sections and, as said before, the position of an individual regarding these three levels is changeable.

- Access to material applications of Science. The Special Rapporteur on the field of cultural rights has stated that: *Innovations essential for a life with dignity*

⁵⁹ Ibid 10

⁶⁰ Ibid

⁶¹ Jessica Wyndham and Margaret Vitullo, 'The Right to Science- Whose Right? To What?' (2015) 4 European Journal of Human Rights 438

*should be essential to everyone, in particular, to marginalized populations.*⁶² In this first section, it is recognised the traditional scope of the HR2S, namely, access to technologies, treatments, services or products. For example, birth control methods, the Internet, electricity, basic vaccines, treatment for tuberculosis... The feature of “essential” varies, develops and becomes broader. There are increasingly more scientific applications that become widely spread and indispensable, whose enjoyment cannot be deprived, especially concerning marginalised populations. The Internet is an obvious example of how an outcome initially intended for privileged classes has become a global and necessary tool for development and to ensure equality of opportunities. However, in practice, this part is quite contentious, as it is not easy to classify which applications are essential from a Human Rights perspective and how, in such cases, access to them should be guaranteed, especially concerning marginalized populations. Also, when those applications are expensive and cannot be afforded by a large sector of the population, questions arise about how the State can facilitate or provide access to them. This paper defends extraterritorial obligations in the frame of international cooperation to realize the HR2S globally.

- Access to scientific knowledge. Concerning the HR2S, the Special Rapporteur has established that: *At the juncture of the right to education and the right to information, it implies the right to science education, understood as a right to be introduced to and informed about main scientific discoveries and their applications, regardless of frontiers.*⁶³ Following the same argument, Professor Lea Shaver has stated that the HR2S encompasses: *a commitment that the frontiers of human knowledge should not be treated as a domain of the privileged few but as the birthright of all. This is consistent with the cooperative vision of equitable development and democratic society that defines the international human rights framework.*⁶⁴ Hence, this section deals with the right of all people to access scientific knowledge and information. The thematic of that information is very broad: health, nutrition, society, climate change,

⁶² Shaheed (n 3) 9

⁶³ Ibid

⁶⁴ Shaver (n 31) 155

biology, economy... In fact, every matter surrounding human being and that has relevance or attracts attention or curiosity. Moreover, the information has to be available in an understandable language in accordance with the different sectors of the population. The idea behind this is to empower individuals to make their own choices in their everyday life based on evidence and reasoning. As the AAAS has stated: *High quality basic scientific education is a prerequisite for this type of access, empowering lay persons to understand technical knowledge that has been translated so as to be comprehensible and potentially actionable.*⁶⁵ In this regard, States should refrain from interfering in that access to information and should provide quality education and scientific engagement.⁶⁶ However, there are risks related to the disclosure of sensitive information that may pose a danger to national security or individual's wellbeing⁶⁷. That is why this aspect must have legal limitations for safety and ethical concerns. These limitations should be balanced by the general provision on limitations on esc rights. However, in principle, the right of people to be informed should prevail.

- Access to scientific data. This category is indispensable for “doing Science.” Apart from data as such, it also includes those aspects related to the systematic empirical research, like access to scientific samples, materials and subjects⁶⁸ This is a requirement to contribute to the scientific process, to allow the reproduction of results, to facilitate training and education, to enrich the debate and so on.⁶⁹ This data should be available for scientists, policy makers and civil society. But this accessibility is not absolute or unrestricted. It has to be limited and balanced in accordance with Human Rights. Privacy, confidentiality, personal security or ethical issues might be used as a yardstick to balance this access.⁷⁰

It has already been mentioned above, but it must be made clear that the HR2S does not advocate free access to Science. Science, the same as Culture, has a value and a price. Instead, such access has to be affordable. Moreover, as affordability is a very

⁶⁵ Wyndham and Vitullo (n 61) 442

⁶⁶ Shaheed (n 3) para.27

⁶⁷ Wyndham and Vitullo (n 61) 438

⁶⁸ Ibid 447

⁶⁹ Ibid

⁷⁰ Ibid

relative concept, when marginalised populations cannot access Science, even if it has a reasonable price, States should take measures, alone or in cooperation with others. At the same time, neither all outcomes nor all knowledge have to be shared according to this provision. This classification is not easy, but generally speaking, the notion of dignity should be used as a threshold.⁷¹In other words, the HR2S must guarantee access to those scientific applications and knowledge linked to dignity. Putting an easy and clear example, treatment for HIV-AIDS is closely related to life, death and suffering, and therefore, it is obviously linked to the concept of the dignity of human beings. Conversely, anti-wrinkle creams do not have the same status, and thus, they are not an outcome that has to be made accessible for all. By the same token, the HR2S does not mean that private companies should not spend their resources on researching successful applications that do not make contribution to human wellbeing, or that overlook special needs of vulnerable people. To sum up, the HR2S is not an imposition of extreme requirements. Not all scientific applications must be accessible for free, all scientific knowledge does not have to be disclosed, nor do all barriers have to be eliminated. Following the latter idea, the HR2S does not pursue the destruction of IP regime. Instead, it advocates the empowerment of people in order to live a life with dignity.

This paper will not focus on elucidating how the HR2S can redress and amend the currently disproportionate and abusive IP regime. This complicated issue deserves a thorough study, which falls out of the scope of this academic piece. However, the Public Good approach to knowledge presented by Lea Shaver will be supported in order to overcome IP barriers. She argues that “*Knowledge is a unique resource that it actually increases, rather than being diminished, as it is shared.*”⁷²For Shaver the HR2S should be understood as a way to redress the “proptertization” of knowledge, and to support an open knowledge approach through cooperation and commitment to universal access.⁷³ This idea is very much in line with the issue of Science for all that this paper underlines. Shaver states that scientific knowledge is an example of non-rivalrous good that is not diminished as more people gets access to it.⁷⁴On the contrary, IP rights can become abusive and disproportionate when they privatize knowledge in a way that makes some essential resources unaffordable for a great part of the society. Apart from that, it can

⁷¹ This idea was presented in the Committee during the discussion about the draft of the GC

⁷² Shaver (n 31) 156

⁷³ Ibid 155

⁷⁴ Ibid 158

also hinder progress, macroeconomic efficiency and innovation.⁷⁵ The Public Good approach to knowledge in the context of HR2S can help to rectify inequalities and to guarantee these three dimensions of access.

2.1.2 Participation

Participation has been the most neglected aspect of the HR2S. Participation is one of the distinctive aspects of this Human Right and enhances transparency, accountability and a sense of shared responsibility for advancing a Public Good.⁷⁶ As stated in the previous chapter, neither article 27 of the UDHR, nor article 15 of the ICESCR expressly mention participation. Instead, it has to be interpreted from the wording. Hence, as has been made clear before, the correct interpretation of these provisions, the inclusion of the elements of development, conservation and diffusion of Science, as well as a broad understanding of the concept of “benefits” leave no room for doubt.⁷⁷ Apart from that, the drafters wanted to ensure such active involvement as part of the normative content of the HR2S. The Chinese delegate of the drafting of the UDHR said: *not only must the right to share in the benefits of scientific advancement be guaranteed to everyone, but also the right to participate in work of scientific creation. In the arts, letters and sciences alike, aesthetic enjoyment had a dual aspect: a purely passive aspect when man appreciates beauty and an active aspect when he creates it.*⁷⁸

For the Special Rapporteur in the field of cultural rights, two of the main advantages of ensuring participation are: first of all, the possibility to direct Science towards key issues of social importance; and, second, to protect people against adverse effects of Science by raising awareness and comprehension.⁷⁹ Also, active participation in Science can help to empower marginalized populations. Therefore, as the Venice Statements asserts “*the right to share in scientific benefits should not be predicated on participation,*”⁸⁰ as participation as such “*is a right in itself.*”⁸¹ The AAAS has also

⁷⁵ Ibid

⁷⁶ Effy Vayena and John Tasioulas, 'We the Scientists: A Human Right to Citizen Science' (2015) 28 Springer 481

⁷⁷ Wyndham and Vitullo (n 61) 451

⁷⁸ United Nations (1948) 151st meeting, held on Monday, 22 November 1948 (A/C.3/SR.151). General Assembly, 3rd session, 3rd committee. Paris:United Nations.

⁷⁹ Shaheed (n 3) 43

⁸⁰ Venice statement (n 28) para 11

elaborated on the issue of participation in Science, concluding that this dimension encompasses the following aspects:

- Participation in personal decision-making processes informed by Science.
- Participation in political processes based on the comprehension of scientific information
- Participation in decision-making processes on research agendas, science policies and funding priorities
- Participation in risk assessments
- Participation of scientists in scientific policy making practices
- Participation in doing science, as professional or amateur⁸²

In order to ensure both, access and participation, due attention must be paid to the questions of funding, education and training, and access to basic information and communication technologies.⁸³ Thus, it can be appreciated that a certain degree of progress is necessary in order to enable an environment that guarantees and motivates access and participation. For example, on the one hand, there has to be a consistent and sufficient public or private funding supporting research. On the other hand, adequate scientific education and training have to be provided. Lastly, there should be access to electricity, computers and Internet, among other basic “vintage” advancements. In other words, capacity building is a prerequisite for the enjoyment of and engagement in Science⁸⁴ and, at the same time, such involvement in Science also enhances capacities and has effects on development. For Timmermans, *“participating in scientific endeavour can help people reach certain capabilities and the fruits of such undertaking can provide technologies as well as knowledge that can play a substantial role in expanding human functioning.”*⁸⁵

Before concluding the dimension of participation in the frame of the HR2S, it is worth considering the notion of Citizen Science and the issue of participation of marginalized populations, more concretely, from developing countries.

⁸¹ Ibid

⁸² Wyndham and Vitullo (n 61) 452

⁸³ Ibid 448

⁸⁴ Christian Timmermann, 'Sharing in or Benefiting from Scientific Advancement?' (2014) 20 Springer

115

⁸⁵ Ibid

Citizen science

The concept of Citizen Science entails the contribution of individuals who are not scientists to the process of Science. This involvement of non-professionals in the scientific activity, allows individuals to be active participants in the scientific endeavour, not just mere recipients of the outcomes. Following on this, the right to participate in Science should not be limited to building a career as scientists or to be subjected to scientific experiments, instead, the idea of being adequately involved in Science should be recognised, on the basis of motivation and awareness.

Apart from being a potential source of innovation, citizen participation can raise awareness, advocate a fair and “social” Science, and push for further engagement of underrepresented groups in scientific activities.⁸⁶ Furthermore, it can serve as a basis for the encouragement of capacity building and can guarantee basic material needs.⁸⁷ The underlying reason is the idea of empowerment of the individuals: getting engaged in Science makes them feel useful and have an opinion on cultural, political, scientific issues.⁸⁸

Citizen Science is a broad concept that can go from participation in decision making on scientific policies to conducting experiments or making observations⁸⁹. In this regard, these levels have been distinguished:

- Crowd-sourced participation in a project led by professional scientists, where individuals contribute to clarifying relevant data, making observations...
- Participation in financing, setting agendas or governing projects also established by professional scientists.
- Collaborative participation between amateurs and professionals in which both design, initiate and govern a project together.
- Participant-led research, in which citizens themselves initiate, design and conduct research.⁹⁰

⁸⁶ Vayena and Tasioulas (n 76) 481

⁸⁷ Timmermann (n 84) 119

⁸⁸ Vayena and Tasioulas (n 76) 480

⁸⁹ For instance, Zooniverse is an online platform in which individuals can contribute to analysing scientific data by watching drone images and counting animals, transcribing soldiers diaries of WWI...

⁹⁰ Vayena and Tasioulas (n 76) 482

Citizen Science has to be regularised within the scope of participation in the HR2S, as an important component of this dimension. There are, indeed, several issues that need further attention: possible exploitation of citizens, adequacy of oversight mechanisms, informed consent ownership of personal data, compliance with ethical scientific standards, authorship in the case of discoveries and risks inherent to the practice, among others.⁹¹

2.1.3 Protection

Like other Human Rights, the HR2S is not unlimited or unconditional. Therefore, it has to be pondered when it clashes with other Human Rights or poses a danger to societies. It has been firmly rejected that scientific activities should be placed at the service of politics, democracy, peace or security, as these are very broad and sometimes ambiguous terms.⁹² Moreover, Science cannot be limited to pursuing legitimate and unanimously accepted aims, as this would overrule scientific freedom. Therefore, risks, controversy and threats to Human Rights and human dignity are somehow implicit in its nature.

In view of this, the element of protection acquires special relevance, and it calls for a clear setting of boundaries. In this regard, article 15 ICESCR refers directly to the issue of protection through limiting scientific freedom with the use of the adjective “indispensable”, when in its paragraph three indicates that: *the States parties to the present Covenant undertake to respect the freedom indispensable for scientific research and creative activity*.⁹³ Therefore, the drafters acknowledged both, the protection of the autonomy and freedom of scientists, and, on the other hand, the duty of scientists to act in a responsible and sensible manner, in accordance with ethical and deontological guidelines.⁹⁴ In conclusion, there has to be a balance between protecting scientific freedom and protecting societies against the misuse of science.

- Protection of scientific freedom. On the one hand, this dimension requires scientific processes to be free from State interference or censoring, so that they

⁹¹ Ibid

⁹² AAAS (n 22) 9

⁹³ ICESCR (n 46) article 15.3

⁹⁴ Wyndham and Vitullo (n 61) 455

contribute to enhancing knowledge and not to serve specific purpose of governments. On the other hand, it is related to the right to education and academic freedom (for instance, rights linked to the autonomy of higher education institutions, rights of scientists to express their opinions or to remain politically impartial).⁹⁵ It also implies the possibility of free association and collaboration between scientific partners, both nationally and internationally. Besides, it recognises the right to share scientific information and results by publishing or publicly discussing them. The protection of moral rights derived from article 27 UDHR could also be placed under this idea of scientific freedom. In general, the independence of Science should be defended in order to avoid false counter arguments or threats to scientific evidences.

- Protection from misuse and abuse of Science. Scientific freedom is not absolute.⁹⁶ Science and scientific actions need to be limited in certain cases. First, the issue of social responsibility of scientists requires due attention.⁹⁷ Science is too powerful to leave it unregulated and to the entire discretion of the scientific community. Social consequences of a determined discovery or application can have a huge impact in people's lives. Therefore, Science has to follow ethical standards and scientists are accountable for how research is carried on, as well as for the legitimacy of scientific results. Following this idea, they should give information to authorities and population about what they are researching and raise awareness about Human Rights implications of their activities or outcomes.⁹⁸ Within this framework, the absolute prohibition of submitting a person to scientific experiments without his or her consent can also be found.⁹⁹ Second, beyond scientific responsibility the issue of harmful effects deriving from misuse or abuse of Science arises. Science can bring beneficial progress to societies, or can also pose a danger and constitute a retrogression. In view of this, the Venice Statement suggested the observance of the

⁹⁵ UN Committee on Economic, Social and Cultural Rights, 'General Comment No. 13: Right to Education' (1999) EC 12/1999/10

⁹⁶ Chapman (n 1)17

⁹⁷ Wyndham and Vitullo (n 61) 457

⁹⁸ Ibid 459

⁹⁹ International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR) art 7

precautionary principle, which comes to say that: *in the absence of scientific consensus, caution and the avoidance of steps are required in case an action or policy might cause severe or irreversible harm to the public or the environment.*¹⁰⁰ Moreover, it recognises as a State obligation to: *monitor the potential harmful effects of science and technology to effectively react to the findings and inform the public in a transparent way.*¹⁰¹ The Statement also lists areas of contemporary controversy (such as, stem cell research, nuclear energy or nanotechnologies) and calls for the integration of impact assessments in the development of Science.¹⁰²

However, it should be noted that it might be difficult to identify such misuse, abuse or inadequacy in advance, as the effects of Science cannot be exhaustively foreseen. Also, a determined scientific result can have dual use or nature (be legitimate and adequate for one purpose or application, but bad for another). What is more, Science being so advanced and specific, sometimes only the scientific community can understand the real implications of a scientific domain. Consequently, it is not easy to determine who is in charge of settling disputes arising between the necessary freedom that scientists claim and the interference of States for the protection against misuse. In the last resort, it should be emphasized that, on the one hand, any scientific endeavour must be consistent with human dignity;¹⁰³ and, on the other hand, limitations *must pursue a legitimate aim, be compatible with the nature of the right and be strictly necessary for the promotion of general welfare in a democratic society.*¹⁰⁴

Finally, further consideration is needed for the question of private corporations, as States obligations of protection regarding their activities and potential violations of HR are not clearly defined by International Law. In other words, it is not clarified to what extent States can step in the autonomy of third parties and control their scientific business arguing, for instance, national security. This paper will address this topic in the context of extraterritorial obligations under the next chapter.

¹⁰⁰ Venice Statement (n 28) para. 12(f)

¹⁰¹ Ibid

¹⁰² Ibid 13(c)

¹⁰³ Chapman (n 1) 11

¹⁰⁴ Shaheed (n 3) 13

2.1.4 International Cooperation

The normative content of article 15 expressly strengthens the issue of International Cooperation of article 2.1 of the ICESCR in its paragraph 4. In this sense, article 15.4 calls for the encouragement of international contacts and cooperation activities for the advancement of Science. For its part, article 2.1 contains a general obligation of cooperation in the field of esc rights in order to achieve the full realization of such Human Rights. Even if it is undoubtedly highlighted by every expert or academic in the HR2S, the extent and subject matter of this dimension are still unclear and controversial in some aspects. In the next chapter, this paper will analyse the extraterritorial obligations of the HR2S that are undoubtedly backed up by this double commitment to International Cooperation enshrined in the ICESCR. In this sense, International Cooperation and, more concretely, extraterritorial obligations are the key to ensure the realization of this right globally.

Nonetheless, most of the States are reluctant to accept that they are legally bound to warrant Human Rights extraterritorially. They prefer to believe that International Cooperation imposes moral duties or recommendations. Following on from that, one of the greatest concerns or criticisms of the HR2S is that it seems utopic to expect that either States or private actors would promote, or even allow, sharing of knowledge, equal participation for all, or transboundary cooperation in scientific affairs. The argument generally used to rebuff these initiatives is of a monetary character. It is argued that actors would be hesitant to share their source of wealth, unless they have a greater incentive to do so. Far from appearing naïve, it must be stressed that this is not entirely true.

International Cooperation and partnerships are essential for the advancement of the scientific field due to its nature. Science has a progressive character, as it evolves while building on the scientific work of previous generations of scientists.¹⁰⁵ Accordingly, Science has the notion of sharing and cooperation implicit in its very own nature. It cannot be set up from scratch, nor constrained at a nationwide level. Human creation and wondering know no borders and for the sake of the advancement of Science, transnational cooperation needs to be sought. Furthermore, new technologies,

¹⁰⁵ Chapman (n 1) 6

the expansion of education and the Internet have facilitated the way we now communicate and access knowledge. These globalisation factors enable better collaboration between scientists, who can work together and share their results despite being geographically apart.¹⁰⁶ People committed to Science rather than to profits, have already acknowledged this, and, in fact, joint programs, partnerships and cooperation for development in scientific areas are the order of the day. Therefore it is realistic to expect and promote further good practices, partnerships and sharing of ideas within the scientific field.¹⁰⁷ The challenge now is to develop the normative content contained in this article and embrace a Human Rights language in regards to International scientific Cooperation.

It should also be pointed out that this cooperation and assistance must be not only among rich northern countries or in the frame of a North-South partnership, but also between southern countries among themselves. The underlying idea is that cooperation in Science is a way of empowering all parties and enabling real sharing in Science, first in the processes and knowledge and afterwards in the outcomes. Fortunately, talent is widely and equally distributed in every part of the world. Scientific curiosity, motivation and capacity to conduct research are faculties that need to be revealed and developed, no matter the place of origin or social condition of the person. Therefore, decent scientific education has to be provided in every corner in order to ensure participation in this field. To this effect, the HR2S must promote cooperation in scientific education and partnerships between universities, among others.

As said before, the next chapter will deal with the justification and analysis of extraterritorial obligations towards the HR2S. This will contribute to elucidate the normative content of the HR2S in relation to international cooperation.

2.1.5 Conservation, development and diffusion

Apart from these four spheres, article 15 ICESCR also recognises as part of the normative content the obligation of States to enable an adequate environment for the conservation, development and diffusion of Science. These three elements are closely

¹⁰⁶ Ibid 27

¹⁰⁷ These argument was put forward in the Committee to counter critics of some members.

interconnected between each other and transversal to the four notions previously explained.

Firstly, conservation is understood as safeguarding and protecting scientific knowledge, tools or products.¹⁰⁸ Secondly, development encompasses promoting progress in Science, especially by funding, encouraging partnerships, designing national plans of action, or advocating for whatever is needed for the improvement and growing of this domain.¹⁰⁹ Concerning this, the Venice Statement emphasizes freedom of inquiry as a necessary element for the development of science, together with scientific freedom and freedom of association.¹¹⁰ Lastly, diffusion means undertaking the commitment to expand and propagate scientific knowledge and information, not just among scientists but also among lay population. It is an essential element in order to promote participation of individuals and communities in decision making, as well as in building research capacity and fostering scientific education in developing countries.¹¹¹

The potential of these notions has not been uncovered yet. They advocate the advancement and expansion of Science and reinforce the idea of Science for all. Furthermore, they serve as a foundation and support for the four dimensions previously explained. This paper will not examine how paragraph 3 of article 15 relates to the normative content of this Human Right, but it calls for further elaboration on this topic, as this analysis can certainly empower the HR2S.

¹⁰⁸ Shaheed (n 3) 13

¹⁰⁹ Ibid

¹¹⁰ Venice Statement (n 28) 8

¹¹¹ Shaheed (n 3) 13

CHAPTER 4

EXTRATERRITORIAL OBLIGATIONS FOR THE REALIZATION OF THE HR2S

In previous sections the meaning, legal basis and normative content of the HR2S have been analysed. This analysis is crucial in order to understand what this Human Right implies, and thus, to make it realizable in the international arena. The elucidation of the HR2S is still ongoing and some of its dimensions deserve further attention to explore their full potential. This last chapter will focus in the study of extraterritorial obligations of the HR2S, as a way to realize this Human Right in a global scale. As said before, International Cooperation is one of the key aspects of the legal structure of this Human Right, and its scope, significance and the obligations it implies have not been yet researched. Cooperation in Science is already common from a practical point of view and it can be seen in numerous examples of partnerships and collaboration between universities, research institutes or States. However, it has not been addressed from a Human Rights perspective yet. Moreover, States are reluctant to accept international binding obligations in esc rights. This paper will contribute to the elucidation of the extraterritorial obligations of the HR2S, as part of the duty of International Cooperation that States bear in articles 2.1 and 15.4 of the ICESCR.

Moreover, it is important to notice that this contribution will attempt to push the Law further. In other words, this academic piece will be very much based in what the Law should be and thus, which direction should the HR2S take. This paper will support the idea that the framework of International Cooperation gives rise to a set of obligations for States, not just mere recommendations or moral duties. As it will be stated later, International Cooperation is an essential principle in International Law and most of International Human Rights Law instruments make a reference to it. Concretely, the ICESCR explicitly recognises International Cooperation and Assistance as a fundamental pillar for the realization of the Human Rights enshrined in that document. What is more, article 15 also includes the issue of International Cooperation in one of its paragraphs, strengthening the significance of this concept in the scientific and cultural field. From these two provisions we can deduce a set of transboundary obligations for States regarding the HR2S. Moreover, with a view to expanding those obligations and exploring, not only what the Law actually implies, but what it should

be, this paper will make a *lex ferenda* contribution to the elucidation of the legal content of the dimension of International Cooperation in the HR2S. To do so, the Maastricht Principles on Extraterritorial Obligations in the Area of Economic, Social and Cultural Rights will be taken as a reference (hereinafter Maastricht Principles). Following this principles, this paper will provide a set of extraterritorial obligations towards the realization of the HR2S that can be deduced from the ICESCR and supported by these principles themselves.

In conclusion, the present chapter will be distributed in the following way. First of all, the concept of International Cooperation and its relation with extraterritorial obligations in International Law will be examined. Although it is a well established principle, it encounters resistance when presented as a matter that triggers fully binding legal obligations for States. Thus, I will follow the approach of several experts that claim that transboundary obligations are a legal requirement for the realization of esc rights. For that purpose, an overview of the legal provisions from which obligations regarding International Cooperation can be inferred will be provided. Analysing the legal foundation of International Cooperation can help us to elucidate the extraterritorial obligations implicit in those provisions and then, apply them to the HR2S. Moreover, Maastricht Principles will also be studied as they serve as a solid basis to support the scope and extent of those extraterritorial obligations. Finally, I will implement those extraterritorial obligations in the context of the HR2S. This content is going to be structured following the triple typology of respect-protect-fulfil, in order to make a clear structure of the extraterritorial obligations that this Human Right implies. This presentation will be supported by academic contributions of the experts in the field and by practical examples linked to the scientific domain. In this way, the legal content of the dimension of International Cooperation in the HR2S will no longer be seen as a mere good practice of States or non-State actors, or as a vague and utopic recommendation, but it will acquire the necessary meaning and strength to be successfully realised through binding international obligations.

4.1 INTERNATIONAL COOPERATION AND EXTRATERRITORIAL OBLIGATIONS IN THE CONTEXT OF ESC RIGHTS

The relation between International Cooperation and extraterritorial obligations can be contentious. For its part, International Cooperation is an overarching principle of International Law, widely accepted and followed by States. Moreover, it is enshrined in various International Human Rights instruments and it is recognised as an essential pillar in order to achieve the realization of esc rights in a global level. In other words, International Cooperation is absolutely necessary in order to ensure the enjoyment of esc rights in a larger scale, as some States would not be able to protect this rights in a nationwide level if it was not for this transboundary cooperation. Through adherence to binding legal instruments as the UN Charter or the ICESCR, States have committed to cooperate internationally, not only in the realization of esc rights (article 2.1 ICESCR) but also in the scientific domain (article 15.4 ICESCR). However, most of the States are reluctant to accept that International Cooperation triggers shared responsibilities and binding obligations to respect, protect and fulfil esc rights of people abroad. Especially, the aspect of fulfilling esc rights abroad is not well received by States. Usually, in the institutional level, international obligations are presented as an advice or suggestion using the expression “States should” rather than as a compelling duty.¹¹² Nevertheless, there are solid grounds to defend that commitments to International Cooperation give rise to global obligations in esc rights and that States are legally bound by them.

In principle, the realisation of Human Rights has a territorial scope.¹¹³ States are obliged to respect, protect and fulfil Human Rights of peoples in its territory. Therefore the extraterritorial notion appears as an exception that is triggered in some cases. Following this idea, we can distinguish between three types of extraterritorial obligations of States depending on their origin. On the one hand, the extraterritorial effect can occur when the population of a State is under the jurisdiction of another State.¹¹⁴ This happens when a State exercises effective control over a person or a territory beyond its borders. For instance, in case of a military occupation, the population of the second State will be under the jurisdiction of the occupying one, that

¹¹² Fons Coomans, 'The Extraterritorial Scope of the International Covenant on Economic, Social and Cultural Rights in the Work of the United Nations Committee on Economic, Social and Cultural Rights' (2011) 11(1) Human Rights Law Review 21

¹¹³ Ibid 2

¹¹⁴ Ibid 5

would have certain obligations towards that population concerning esc rights.¹¹⁵ On the other hand, the extraterritorial dimension also happens in case of sanctions, when these have a Human Rights effect in the targeted State.¹¹⁶ Finally, extraterritorial obligations appear also as a consequence to global obligations to secure Human Rights in the world.¹¹⁷ As said before, States have committed to realize progressively socio economic and cultural rights of all through International Cooperation in numerous international treaties and other solemn legal documents.¹¹⁸ Therefore, a State is bound by the international obligation to contribute to the realisation of esc rights of people outside its territory when it can exercise a decisive influence or take measures that would have an impact in such enjoyment.¹¹⁹ It also occurs when the conduct of a State has extraterritorial effects and affects the enjoyment of esc rights abroad. For instance, when a State adopts an agreement with another State and obstructs the enjoyment of esc rights of the latter. In these cases, a State would have a responsibility towards the population of another one due to its conduct. Consequently, extraterritorial obligations may, in some case, arise as a consequence of the commitments to International Cooperation made by States. This paper follows this idea, as it will attempt to clarify which are the international obligations that emanate from those commitments made in the context of the HR2S, especially from article 15.4 of the ICESCR.

4.2 LEGAL FOUNDATION OF EXTRATERRITORIAL OBLIGATIONS REGARDING THE HR2S

In this section the legal provisions from which the concept of International Cooperation has to be deduced will be presented, in order to analyse the basis for the extraterritorial obligations of the HR2S that will be addressed later. Moreover, this

¹¹⁵ Margot Salomon, "The Maastricht Principles on Extraterritorial Obligations in the Area of Economic, Social and Cultural Rights: An Overview of Positive 'Obligations to Fulfil'" (EJIL: Talk!, 16 November 2012) <<https://www.ejiltalk.org/the-maastricht-principles-on-extraterritorial-obligations-of-states-in-the-area-of-economic-social-and-cultural-rights-and-its-commentary-an-overview-of-positive-obligations-to-fulfil/>> accessed 1 July 2017

¹¹⁶ Coomans (n 112) 11

¹¹⁷ Salomon (n 115)

¹¹⁸ Such legal documents include the Chapter of the United Nations, the Universal Declaration of Human Rights, the International Covenant on Economic Social and Cultural Rights, the International Convention on the Elimination of All Forms of Racial Discrimination, the Convention on the Rights of the Child, the Convention on the Rights of Persons with Disabilities...

¹¹⁹ Salomon (n 115)

provisions will be organised from a general scope to a more specific one, in other words, from a more general Human Rights approach to a more specific perspective of Science. Examining these articles is a prerequisite to establish the basis for the study of extraterritorial obligations arising from International Cooperation in the framework of the HR2S.

4.2.1 UN Charter: article 55 and 56

The UN Charter is the concluding document of the conference held in San Francisco in 1945, by which the organisation of the UN was established. This constituent treaty is divided into 19 chapters dealing with the purposes, organs or powers of the UN, among others.¹²⁰ Chapter IX addresses the issue of International Economic and Social Cooperation. For the purpose of the present analysis, is important to acknowledge articles 55 and 56. On the one hand, article 55 states that the UN shall promote: “*solutions of international economic, social, health, and related problems; and international cultural and educational cooperation.*”¹²¹ On the other hand, article 56 says that: “*all Members pledge themselves to take joint and separate action in co-operation with the Organization for the achievement of the purposes set forth in Article 55.*”¹²²

These two provisions are binding for all States Members of the UN. They establish the foundation of cooperation among States oriented to realize Human Rights of all, and more concretely, esc rights. The idea of International Cooperation enshrined in this document has been further elaborated in two other declarations made under the auspices of the UN, namely, the Declaration on Principles of International Law concerning Friendly Relations and Co-operation and the Declaration on the Right to Development.

¹²⁰ United Nations, 'Charter of the United Nations' (*Www.un.org*) <<http://www.un.org/en/charter-united-nations/index.html>> accessed 2 July 2017

¹²¹ Charter of the United Nations (adopted 24 October 1945) United Nations Treaty Series 1 XVI (UN Charter) article 55

¹²² Ibid article 56

4.2.2 Article 2 ICESCR

The article 2.1 of the ICESCR concerning International Cooperation states what follows:

*1. Each State Party to the present Covenant undertakes to take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized in the present Covenant by all appropriate means, including particularly the adoption of legislative measures.*¹²³

This provision comes to say that States have the obligation to progressively realise the articles of the ICESCR, using all appropriate means. The source of this means can be of national or international origin. What is more, one of the principal arguments to defend extraterritorial obligations of States in the context of esc rights is the fact that the Covenant does not make any specific reference to the territory or jurisdiction of a State.¹²⁴ In other words, it does not explicitly mention that the protection of esc rights has to be done solely within the boundaries of a State. On the contrary, it expressly mentions International Cooperation and Assistance as a means of realizing esc rights. In order to shed light on the scope and extent of the obligations arising from this article it is useful to analyse the interpretation work done by the Committee. In its General Comment No. 3 regarding the nature of States parties obligations, it has established what follows:

*The Committee wishes to emphasize that in accordance with Articles 55 and 56 of the Charter of the United Nations, with well-established principles of international law, and with the provisions of the Covenant itself, international cooperation for development and thus for the realization of economic, social and cultural rights is an obligation of all States. It is particularly incumbent upon those States which are in a position to assist others in this regard.(..)*¹²⁵

¹²³ ICESCR (n 46) article 2.1

¹²⁴ Coomans (n 112) 6

¹²⁵ UN Committee on Economic, Social and Cultural Rights 'General Comment No. 3: The Nature of States Parties' Obligations'(1990) E/1991/23, para 14

According to the Committee, commitments in the frame of International Cooperation are related to the fulfilment of core obligations of these Human Rights.¹²⁶ In this regard, wealthier States that are in a position to assist have the obligation to provide International Assistance and Cooperation, especially economic and technical, in order to enable developing countries to comply with their core obligations.¹²⁷ Over the years, the Committee has mentioned the concept of international obligations in many observations, general comments and practices.¹²⁸ Also, according to Alston and Quinn: *In the context of a given right it may, according to the circumstances, be possible to identify obligations to co-operate internationally that would appear to be mandatory on the basis of the undertaking contained in Article 2(1) of the Covenant.*¹²⁹ Article 15 is undoubtedly one of them.

Furthermore, this article mentions also the concept of assistance. In order to avoid misunderstanding about the concept of assistance, it should be noticed what Coomans has established: *One would argue that cooperation is the wider term meaning a relationship providing for mutual advantages for the participating states, while providing assistance is a unilateral act requiring efforts from one state to the benefit of another state*¹³⁰. In this paper, the broad notion of International Cooperation will be used, encompassing not only assistance, but also the issue of cooperation for development.¹³¹

For its part, article 23 of the ICESCR is also relevant, as it presents some forms of international action, such as technical assistance and the holding of specialised meetings to advance the collaboration between governments.

¹²⁶ Carmona, M. (2009). The obligations of 'international assistance and cooperation' under the international covenant on economic, social and cultural rights. Pg. 850, (as cited in Schutter, O., & Edward Elgar Publishing. (2013). *Economic, social and cultural rights as human rights* (Elgar research reviews in law). Cheltenham: Edward Elgar Pub. Limited.)

¹²⁷ Ibid

¹²⁸ Sepúlveda M, 'Obligations of International Assistance and Cooperation in an Optional Protocol to the International Covenant on Economic, Social and Cultural Rights' (2006) 24(2) Netherlands Quarterly of Human Rights 853

¹²⁹ Alston, Philip and Quinn, Gerard, 'The nature and scope of States parties' obligations under the International Covenant on Economic, Social and Cultural Rights', Human Rights Quarterly, Vol. 9, No. 2, 1987, p. 19

¹³⁰ Coomans (n 112) 10

¹³¹ Ibid 16

4.2.3 Article 15.4 ICESCR

After the full analysis of article 15 of the ICESCR done in the previous chapter, there is no doubt that International Cooperation is an essential element of the HR2S. What is more, the last paragraph of this provision reads as follows:

4. The States Parties to the present Covenant recognize the benefits to be derived from the encouragement and development of international contacts and co-operation in the scientific and cultural fields.

As has been previously explained, article 15 strengthens the general obligation of International Cooperation and Assistance enshrined in article 2.1. This is very representative of the importance given to the issue of extraterritorial efforts for the realisation of esc rights by the drafters of the ICESCR. In fact, during the drafting the representative of Pakistan said that great efforts should be made, both nationally and internationally, to ensure that “*countries where Science had made little progress might attain the goals set forth in the proposed provision*”.¹³²

This paper supports the idea that International Cooperation is a legal obligation of States and that it has to be scrutinized in order to elucidate the extraterritorial obligations that it implies in each esc right. Furthermore, in the context of the HR2S, it is not just a legal obligation, but is an essential component for the full realization of this Human Right. Science is inherently linked to the concept of union, cooperation and sharing, also across borders. That is the reason why this provision highlights this overarching concept. This double reference to transboundary cooperation is a solid starting point for the research of extraterritorial obligations. In this regard, States have committed to realising esc rights, and in particular the HR2S, through International Cooperation and this triggers a set of transboundary obligations essential to ensure Science for all.

¹³² AAAS (n 22) 14

4.2.4 Maastricht Principles on Extraterritorial Obligations in the area of Economic, Social and Cultural Rights

The Maastricht Principles were adopted in 2011 by forty Human Rights experts at a meeting convened by Maastricht University and the International Commission of Jurists. The aim of this document is to enunciate the legal components of the obligations of International Cooperation enshrined in article 2.1 of the ICESCR. In other words, the aim is not to create new Human Rights obligations, but to clarify the already existing ones. These principles appear as a way to overcome gaps in Human Rights protection accentuated by globalisation, such as lack of accountability, ineffective application of Human Rights law in trading and investment and lack of implementation of duties to ensure esc rights abroad.¹³³ This document recognises the need to uphold extraterritorial obligations on order to ensure universal protection as well as to *provide regulation of transnational corporations, hold Inter-Governmental Organizations accountable for their impacts, and ultimately stop the destruction of eco-systems and the climate*¹³⁴

The content of the Maastricht Principles will be used to build a *lex ferenda* contribution to the legal content of the HR2S by researching the global duties it implies.

4.3- EXTRATERRITORIAL OBLIGATIONS OF STATES IN THE HR2S

This section will conclude with the study of the legal content of extraterritorial obligations deduced from the provisions of International Cooperation analysed before and applied to the HR2S. For that purpose, this part will be divided into three types of extraterritorial obligations, namely, respect, protect and fulfil. As said before, this contribution will attempt to push the Law further and explore the path that International Cooperation in Science should follow.

¹³³ Maastricht Principles on Extraterritorial Obligations of States in the area of Economic, Social and Cultural Rights (adopted on 28 september 2011) available at https://www.fidh.org/IMG/pdf/maastricht-eto-principles-uk_web.pdf Preamble

¹³⁴ Ibid

4.3.1 RESPECT

As a general rule of the obligation to respect, States have to refrain from interfering in the enjoyment of the HR2S of people abroad. In other words, they must refrain from acting or omitting in such a way that may hinder the enjoyment of this kind of rights by people outside the territory of the State. Applied to the scientific domain, that interference can be, for instance: censorship, like restrictions on access to Internet, or putting barriers to the free availability of scientific journals and literature.¹³⁵

The idea of extraterritorial respect is rooted in article 56 of the UN Charter that, as stated above, recognises that States owe “universal respect” one to another in the realization of Human Rights. Moreover, this matter particularly includes “*solutions of international economic, social, health and related problems, and international cultural and educational cooperation*”¹³⁶ The concept of Science does not explicitly appear in this statement, but it is implicitly recognised as it makes a reference to esc rights in general, and also because it refers to international cultural cooperation, where the HR2S, as a cultural right is undoubtedly included. In conclusion, it comes to say that States have to take action, jointly and separately through International Cooperation to respect the HR2S. Such interference can be either direct or indirect.

Direct Interference

States parties must refrain from any activity or measure that may hinder the realisation of the HR2S of peoples outside their own territory. Direct interference occurs when the conduct of the State has a potential impact on the enjoyment of esc rights of people outside its jurisdiction, because of an action or omission that has a negative impact on them. For instance, when a State refuses the entry of foreign scientists in its territory and thus, violates the scientific freedom of those foreigners aiming to collaborate or conduct joint research with local scientists. In this sense, Trump’s administration’s immigration policies have already affected scientists coming from

¹³⁵ Chapman (n 1) 28

¹³⁶ De Schutter O and others, 'Commentary to the Maastricht Principles on Extraterritorial Obligations of States in the Area of Economic, Social and Cultural Rights' (2012) 34 Human Rights Quarterly 1127

those seven Muslim-majority countries bearing a travel ban to the US.¹³⁷ Apart from violating other civil and political rights, when affecting to scientists traveling for professional purposes, this kind of measures would also breach freedom of scientists to conduct research and to create overseas partnerships, as part of the HR2S.

This obligation would also include respect for scientific partnerships, transboundary cooperation activities, sharing of their results and so on. In this regard, the report of the AAAS concerning American scientist's perspectives stated that *"beyond the provision of aid or international assistance, the focus group participants saw international exchange of ideas and collaboration as fundamental to scientific knowledge production in a global age. They called for removing barriers to international travel and information exchange, including allowing national funding agencies to support international partnerships on scientific projects."*¹³⁸ In conclusion, there is also an obligation to respect international scientific activities, sharing of information and partnerships.

Indirect interference

Maastricht principles recognise a variety of acts and omissions when a State impacts on the conduct of another State or international organisation, or acts under the auspices of the latter, and indirectly obstructs the observance of other actors to esc rights.

First of all, when acting as members of international organisations, States must avoid to take any decision that would affect the enjoyment of esc rights of other States. This is particularly relevant in the case of clashes between IP rights and the HR2S. For instance, when acting as part of the WTO or WIPO, States must refrain from supporting decisions or taking measures under the umbrella of those organisations that would affect the enjoyment of the HR2S of other States. For instance, if States parties to the WTO agree to amend the TRIPS agreement in such a way that hardens patent protection, this would hinder affordable access to scientific benefits and research capacity of third

¹³⁷ AAAS, 'Science urge boycott of US meeting' (*Science*, 2017) <<http://www.sciencemag.org/news/2017/02/scientists-urge-boycott-us-meetings>> accessed 3 July 2017

¹³⁸ AAAS (n 22) 14

developing States. Consequently, that would amount to retrogression in the realization of this Human Right by developing States, that could no longer ensure access to scientific outcomes to their population, or that would not be able to create their own patent regime.¹³⁹

Second, States must also refrain from behaving in such way that impairs the ability of another State to comply with its obligations. This is applicable when a State aids, assists, control or coerces another State to infringe the HR2S. It must be noticed, that this only applies when the State had knowledge of the circumstances of the internationally wrongful act, in other words, when it was aware of the breach to international Human Rights law that the third State was about to commit.¹⁴⁰

For example, when applying TRIPS flexibilities some States have been coerced not to do so. TRIPS flexibilities were introduced in the Doha Declaration on TRIPS Agreement and Public Health, in order to redress and balance the original Agreement in line with Human Rights, specifically with the Human Right to Health.¹⁴¹ The HR2S, due to its content and scope, could have also been used as a yardstick to amend those IP rights and thus, been acknowledged as a counterforce in such Declaration. Nevertheless in 2001, when it was issued, there was still a wide ignorance and confusion in regards to this topic. Coming back to the issue of flexibilities, the key exception is the one referring to compulsory licensing, by which developing States can enact a provision to allow use without patent holder's authorization in cases of national emergencies or public health crises. For instance, by virtue of this mechanism, a State could allow scientific research for the fabrication of a generic medicine based on a patented product. However, those flexibilities are not self-executing, so developing States must adopt specific national laws recognising such exceptions. Still, most of developing States have not done so yet.¹⁴² On the one hand, because there are not enough clear guidelines on how and under which circumstances should they opt for compulsory licensing

¹³⁹ Leslie London and others, 'Multidrug-Resistant TB: Implementing the Right to Health through the Right to Enjoy the Benefits of Scientific Progress' (2016)18(1) Health and Human Rights Journal 36

¹⁴⁰ International Law Commission, Articles on Responsibility of States for Internationally Wrongful Acts (adopted on November 2001) A/56/10 Article 17

¹⁴¹ WTO, Declaration on TRIPS Agreement and public health (adopted on 14 November 2001) WT/MIN(01)/DEC/2

¹⁴² Sisule Musungu and Cecilia Oh, 'The use of flexibilities in TRIPS by developing countries: can they promote access to medicines?' [2005] 1(1) Commission on Intellectual Property Rights Innovation and Public Health available at <http://www.who.int/intellectualproperty/studies/TRIPSFLEXI.pdf>

mechanisms. And, on the other hand, because developed States have been accused of coercing them not to do so. The Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health has analysed the use of those flexibilities by developing States in the context of access to medicines, and he has come to the conclusion that: *“a number of developing countries while attempting to implement TRIPS flexibilities to address public health concerns, have experienced pressure from developed countries and multinational corporations.”*¹⁴³ This coercion would be a clear example of violation of the HR2S that would trigger an extraterritorial obligation of respect.

In the same line, the so called TRIPS-plus provisions also threaten the HR2S and could trigger extraterritorial responsibility to States imposing them. Despite the commitments taken in the Doha Declaration, these provisions go beyond the minimum requirements of the TRIPS Agreement, demanding that States like Brazil, China or Central American countries adopt tougher or more restrictive IP laws, as part of trade agreements with US or the European Union.¹⁴⁴ Some examples of those imposed TRIPS-plus provisions that would affect the HR2S of third countries would be, for example: extending the duration of a patent for more than 20 years or data exclusivity, when scientific information is kept secret for around 5 to 10 years.¹⁴⁵ This data exclusivity is a subtle way to prevent competition, even if the product is not patented, or if it has a compulsory licensing. For instance, in the case of confidential data concerning a drug's safety, in order to register a generic drug, the manufacturer would have to conduct all the trials and exams from scratch in order to formally ensure its safe viability. Therefore, this would result lengthy, costly and could prevent them from investing and researching for such generic drug.

These are clear examples of the kind of indirect interference that the normative content of the HR2S prohibits, as a violation to the international obligation to respect the Human Right in question.¹⁴⁶ Nonetheless, the issue with indirect interferences is the

¹⁴³ UN, Report of the Special Rapporteur on the right of everyone to the enjoyment to the highest attainable standard of physical and mental health, Paul Hunt (2008) A/63/263

¹⁴⁴ Medesins sans frontieres, 'Medesins sans Frontieres Access campaign' (*Msfaccess.org*, 2011) <<https://www.msfaccess.org/content/trips-trips-plus-and-doha>> accessed 13 June 2017

¹⁴⁵ Ibid

¹⁴⁶ London and others (n 139) 36

¹⁴⁶ Commentary to the Maastricht Principles (n 136) 1131

difficulty to measure to what extent the act or omission of one State has had such decisive impact in the non-compliance with the HR2S of another State. The impact may have existed, but there are certainly many other factors that also had an influence in the impairment of the HR2S. Hence, one can argue that it is not easy to identify a State guilty of having disrupted the obligation to respect the realization of the HR2S of another State. Moreover, coercion as such is not easy to identify among international actors. These challenges, however, cannot prevent the HR2S from setting high standards in its extraterritorial obligations. As said before, in this academic contribution we are trying to push the Law further, so even if some of these suggestions can seem utopic the recognition of these extraterritorial obligations can empower peoples and States to be aware of their rights and fight for them.

Sanctions and equivalent measures

As said before, the imposition of sanctions can also trigger extraterritorial obligations. Following what Maastricht Principles say, States must refrain from imposing sanctions, embargoes or similar measures that would restrict the capacity of others to comply with the HR2S. The term “measures” encompasses military blockades, prohibition of trade with another state, sanctions for non-compliance with WTO rules or termination of preferential trade agreements¹⁴⁷. When a State or group of them impose such measures to another country, and if there are enough grounds to acknowledge that this has a negative effect on the realization of the HR2S of the affected State, this would give rise to extraterritorial obligations¹⁴⁸. Although the Committee has not explicitly recognised that imposing sanctions and other measures would trigger extraterritorial responsibilities, some scholars affirm that it undoubtedly does so.¹⁴⁹ So a sanction that obliges a State to terminate a public scientific research unit would be violating the HR2S of those affected people: lay population that can no longer benefit from such research, nor the scientific community can continue their work. This would give rise to extraterritorial obligations of those States that have imposed such measure if there is a clear connection between the violation of the HR2S and the measured imposed. The key

¹⁴⁷ Commentary to the Maastricht Principles (n 136) 1131

¹⁴⁸ Coomans (n 112) 12

¹⁴⁹ Ibid

duty is that such measure has to be designed in a way that affects as less as possible the enjoyment of esc rights by the population. In this regard, the Committee has declared that esc rights *must be taken fully into account when designing an appropriate sanctions regime*¹⁵⁰ For instance, a measure cannot be implemented in a way that impairs access to basic scientific outputs to marginalized population, such as Internet, mobile phones or essential medicines.¹⁵¹

The question here arises when those counter-measures are imposed as a response to internationally wrongful acts, and thus, are legitimate, both legally and morally. A clear example linked to the HR2S, is the sanction imposed by the UN Security Council to the “Academy of National Defence of Science” based in North Korea, which has been accused of working, together with the government, in the advancement of nuclear weapons programs, among others.¹⁵² The Law does not take position as to whether it is legitimate to impose sanctions that nullify or impair esc rights in a State, when the latter has been accused of violating peremptory norms of International Law.¹⁵³ In any case, they have to be consistent to the limitations of article 4 of the ICESCR.

4.3.2 PROTECT

The environment in which the ICESCR was drafted has changed along the decades. The classic Human Rights context was sustained on the basis of a strong State that was the guardian and promoter of esc rights. However, nowadays, due to globalisation, such landscape has changed and there are multiple actors with the same or more influence in the scientific discipline, both in research capacity and funding.¹⁵⁴ Thus, the policy space is now shared with transnational corporations, global institutions or private funding units, especially in developing countries, where central institutions

¹⁵⁰ UN Committee on Economic, Social and Cultural Rights ‘General Comment No. 8: The relationship between economic sanctions and respect for economic, social and cultural rights’ (1997) E/C.12/1997/8 Para 1

¹⁵¹ Similarly, regarding the Right to Health, the Committee has stated *States parties should refrain at all times from imposing embargoes or similar measures restricting the supply of another state with adequate medicines and medical equipment’ General Comment 14, para 41.*

¹⁵² UNSC, The List established and maintained pursuant to Security Council res. 1718 (2006) available at <https://scsanctions.un.org/fop/fop?xml=htdocs/resources/xml/en/consolidated.xml&xslt=htdocs/resources/xsl/en/dprk.xsl> 8

¹⁵³ Commentary to the Maastricht Principles (n 136) 1132

¹⁵⁴ Chapman (n 1) 24

are weak and often corrupted. In the scientific field, this is a common reality, as multinational companies and private funding agencies are gaining importance as main actors in Science.

For the analysis of this typology it is useful to examine the recent General Comment on State Obligations under the ICESCR in the context of Business Activities adopted in June 2017 by the Committee. It addresses the issue of adverse impacts of companies on the enjoyment of esc rights and clarifies States obligations in these situations. This General Comment expressly acknowledges the issue of extraterritorial obligations. Moreover, regarding the obligations of States over non- State actors of its territory and following the explicit reference to International Cooperation of the article 2.1, it remarks that:

*It should be contradictory to such a reference to allow a State to remain passive where an actor domiciled in its territory and/or jurisdiction, and thus, under its control or authority, harms the rights of others in other States, or where conduct by such an actor may lead to foreseeable harm being caused.*¹⁵⁵

Consequently, this General Comment establishes what follows:

*Extraterritorial obligations arise when a State party may influence situations located outside this territory, consistent with the limits imposed by international law, by controlling the activities of corporations domiciled in its territory and/or jurisdiction, and thus may contribute to the effective enjoyment of economic, social and cultural rights outside its national territory*¹⁵⁶.

For Fons Coomans, the challenge is to adapt the ICESCR to the era of globalisation and to reach beyond traditional concepts of State sovereignty in order to clarify how a State Party can be held responsible for the acts with extraterritorial impacts committed by a non-state actor.¹⁵⁷ In the case of the HR2S this typology would be intended to protecting this Human Right from been violated by a third non-State actor acting extraterritorially. First, the bases for extraterritorial obligations of

¹⁵⁵ UN Committee on Economic, Social and Cultural Rights ‘General Comment No. 24: State obligations under the International Covenant on Economic, Social and Cultural Rights in the context of Business Activities’(2017) E/C.12/GC/24 9

¹⁵⁶ Ibid 10

¹⁵⁷ Coomans (n 112) 3

protection in esc rights will be presented. Then, considering the Maastricht Principles and other legal documents these obligations will be applied to the context of the HR2S.

Bases for protection

According to the Articles on Responsibility of States for Internationally Wrongful Acts, States are responsible for the conduct of private actors in these three situations:

- When the entity is following the instructions of, or acting under the control or direction of the State concerned.¹⁵⁸
- If the entity is exercising elements of governmental authority, in absence or default of pertinent authorities or because the legislation entitles them to act in such way.¹⁵⁹
- When a conduct is acknowledged and adopted by a State as its own.¹⁶⁰

In these cases States will be held directly responsible, as they are considered as acts of the State itself. Moreover, the Committee went further in the General Comment N. 24 recognising that obligations under the Covenant have extraterritorial effect in these two cases: when the corporations are incorporated under the law of the State and when they have their statutory seat, central administration or principal place of business in the national territory.¹⁶¹ Even if the State is not held directly responsible, it can reveal a violation of the ICESCR when it has not taken appropriate measures to prevent that event.¹⁶²

For its part, Maastricht Principles recognise the possibility of a State to exercise universal jurisdiction to protect esc rights in the following cases:

- when the harm or threat of harm occurs or has its origin on its territory
- where the non- State actor has the nationality of such

¹⁵⁸ International Law Commission, Articles on Responsibility of States for Internationally Wrongful Acts (n 140) article 8

¹⁵⁹ Ibid article 9

¹⁶⁰ Ibid article 11

¹⁶¹ GC 24 (n 155) 9

¹⁶² Ibid 11

- in business enterprises, the State where the corporation has its centre of activity, is registered or has its main place of business
- where there is substantial link between the State and the conduct it seeks to regulate
- where any conduct impairing economic, social and cultural rights constitutes a violation of a peremptory norm of international law or an internationally recognised crime. In these cases, States must exercise universal jurisdiction over those who have responsibility.¹⁶³

Consequently, there are several grounds in which the HR2S can trigger international obligations of protection due to the extraterritorial conducts of non-State actors. First, the theory of the obligations will be provided and then, some practical examples applied to the HR2S will be given.

Extraterritorial obligations to protect

States must take all necessary measures to prevent that non-State actors under the jurisdiction of the State (for instance, transnational corporations, business enterprises or private funders) do not undermine the enjoyment of the HR2S abroad. The State party has responsibility over the conducts of non-state entities acting outside its territory or whose actions or omissions have consequences extraterritorially.¹⁶⁴ Besides, it bears also responsibility over those non-state actors when it is able to influence them by legal or political means.¹⁶⁵ The State has the obligation to regulate, both nationally and in an international level in order to ensure that non-State actors do not violate the HR2S of people abroad. Moreover, if they do so, States have the duty to hold non-State actors impairing the realization of esc rights abroad accountable from such abuses and to ensure an effective remedy for those affected.

In the case of the HR2S all these international obligations can be applied in the following way to the realities of this Human Right:

¹⁶³ Maastricht Principles (n 133) para. 25

¹⁶⁴ Sepulveda (n 128) 282

¹⁶⁵ UN Committee on Economic, Social and Cultural Rights 'General Comment No. 15: The Right to Water'(2003) E/C. 12/2002/11 para. 33

- First of all, States must take due account of the protection of HR2S in bilateral and multilateral agreements and in the context of international organisations. This applies in the same situations that have been discussed as part of the obligation to respect. However, in this context, there is not just an obligation to refrain from taking actions under the auspices of an International Organisation or not to interfere with the realization of the HR2S abroad, but it also implies an active connotation. Thus, States must take measures, also political and legal, to protect people from having their HR2S violated as a consequence of these interferences.

- Secondly, States must ensure that the actions or omissions of non-State actors whose extraterritorial conducts fall within the bases of protection previously explained do not pose a danger to societies. An example of this would be the commercialisation and use of toxic chemicals by the agrochemical multinational company called Monsanto. These chemicals pose risks to farmers, community health, biodiversity and the environment in which they are used, as they are proved to cause contamination, birth defects and to increase risks of cancer.¹⁶⁶ These threats are a violation to the right to health, to food and also to the HR2S, as they are a consequence of the misuse of Science and lack of protection. Furthermore, it has extraterritorial consequences that have to be addressed in an international level. In this regard the Tribunal of Monsanto, a very unique “Opinion Tribunal” was created by civil society to hold this corporation accountable for violating human rights.¹⁶⁷ Following the procedures of the International Court of Justice, the judges heard the testimonies and then delivered an advisory opinion on the question. In such conclusion, Monsanto was found guilty of infringing the HR2S, together with the right to a healthy environment the right to food or the right to health.¹⁶⁸ Concerning the HR2S, Monsanto was accused of (a)commercialising a product that had severe

¹⁶⁶ Earth justice, 'Public interests groups, farmers file lawsuit against challenging Monsanto's Toxic Pesticides' (*Earth Justice Because the Earth needs a Good Lawyer*, 2017) <<http://earthjustice.org/news/press/2017/public-interest-groups-farmers-file-lawsuit-challenging-monsanto-s-toxic-pesticides>> accessed 3 July 2017

¹⁶⁷ Monsanto tribunal, 'Summary of the Advisory Opinion of the International Monsanto Tribunal' (*International Monsanto Tribunal*, 2017) <<http://www.monsanto-tribunal.org/>> accessed 3 July 2017

¹⁶⁸ Ibid 3

implications on human health, (b) manipulating scientific research on the study of such product, (c) impairing researchers to conduct independent analysis, (d) affecting the right to freedom indispensable for scientific research.¹⁶⁹ All these issues have an extraterritorial component and thus, the Monsanto Tribunal called upon the international community to comply with their obligations to hold non-State actors accountable from a Human Rights perspective.¹⁷⁰ The State in which Monsanto has its headquarters, the US, has sued this corporation for its Human Rights abuses.¹⁷¹ If it would not have done so, the US could have been accused of violating the extraterritorial obligation to protect peoples affected by Monsanto's actions. Although the HR2S does not appear in any of the documents of this case, it is undoubtedly linked to it.

- States must ensure that transnational industries, scientific associations, universities, laboratories and so on do not restrict the HR2S of individuals, groups or institutions abroad. For example, their access and participation rights or the scientific freedom. Following the case of Monsanto, the Tribunal condemned this corporation of violating rights of scientists to access to information, conduct research and therefore enjoy the necessary freedom for their activities.
- States must comply with extraterritorial obligations to protect people from false knowledge, from interference in research or from manipulation of evidence. States must ensure that the scientific information in hands of the population within and beyond its borders is authentic, rigorous and reliable. The complexity of this issue is that data does not “speak for themselves”, and thus it has to be interpreted.¹⁷² In this process interests of private groups can play an essential role in minimizing risks and trying to avoid regulation and control over their activities. An example of this is the alleged manipulation of research by the

¹⁶⁹ Ibid

¹⁷⁰ Ibid

¹⁷¹ Cbs, 'Washington state sues Monsanto over PCB

Pollution (CBSNews, 2016) <<http://www.cbsnews.com/news/washington-state-sues-monsanto-over-pcb-pollution/>> accessed 3 July 2017

¹⁷² Lisa Bero, 'Tobacco Industry Manipulation of Research' (2005) 120(1) Public Health Reports 200

tobacco industry. This industry has directed enormous resources to attack and refute scientific studies and risks assessments reports concerning health risks linked to tobacco smoke.¹⁷³ It is known that companies in this field have funded their own research to counter, suppress or criticise medical evidence supporting risks related to tobacco. These unilaterally funded and not peer-reviewed research projects aimed to create controversy, constitute a threat to the independence and purpose of Science.¹⁷⁴ States must take measures regarding these practices. First, they must investigate the source of the controversy in order to check whether this information is primarily manipulated by the concerned industry or if it has other additional and trustful supporters. The aim is not to limit scientific debate, but to identify and discredit false assumptions and information. Moreover the State in question must prevent the support of those false and low quality research by media or other institutions. In conclusion, States have the extraterritorial obligation to protect people from being misinformed and to take adequate measures to avoid the disclosure of false and manipulated scientific information.

4.3.3 FULFIL

The positive obligation to take action jointly in order to fulfil esc rights is rooted in the UN Charter, as it urges Member States to cooperate among them in order to achieve the realization of the higher standards of living and progress.¹⁷⁵ However, the issue of fulfilment of esc rights abroad is the most contentious one in the context of extraterritorial obligations. As Salomon establishes: *high-income States tend to equate the obligation with resource transfer and then to take the position that they have no legal obligation to transfer resources abroad in order to address need, only a moral duty.*¹⁷⁶ Nevertheless, the obligation to fulfil esc rights cannot be limited to such narrow scope. There is a requirement to ensure the creation of an international enabling environment for the realization of esc rights and over the years the international

¹⁷³ Ibid

¹⁷⁴ Ibid

¹⁷⁵ Salomon (n 115)

¹⁷⁶ ibid

community has strengthen the idea that international efforts have to be directed to address existing deficiencies.

It must be pointed out that not only developed countries have to comply with these obligations, but all those States that are in a position to assist. In this regard, Salomon says that *Any State possessing capacity and any variety of resources – economic, technical, technological, influence in decision-making – must harness those assets also towards fulfilling economic, social and cultural rights elsewhere in the world.*¹⁷⁷ This is especially important in the scientific cooperation in order to boost the idea that every individual and State has to contribute to the whole process in Science without distinction. It comes to say that there should also be cooperation among developing States, not just from North to South. In fact, those conceptions have to be overcome to avoid a paternalistic divisions of roles

In general terms, there is an obligation to seek and provide International Cooperation. On the one hand, States have to look for cooperation and assistance when they cannot realize their HR2S. This aspect acquires special importance in the case of Science, because it is not seen by developing States as a pressing need, and hence, they might tend to overlook this Human Right. However, according to the obligation to seek assistance, economic constraint and poverty cannot be used as an excuse not to invest in Science. Moreover, as recipients of cooperation and assistance, States are required to identify their needs, for instance in order to request technical assistance or development cooperation.¹⁷⁸ On the other hand, within the framework of the obligation to provide cooperation the Special Rapporteur, Farida Shaheed, says that States have to provide *“direct aid, financial and material, as well as the development of international collaborative models of research and development for the benefit of developing countries and their populations”*.¹⁷⁹ In this paper four different duties of States have been identified: (a) obligation to create an international enabling environment for the realization of the HR2S, (b) obligation to design joint research programmes, (c) obligation to monitor potential harmful effects and (d) obligation to contribute to building scientific capacity.

¹⁷⁷ Salomon (n 115)

¹⁷⁸ UN Committee on Economic, Social and Cultural Rights ‘General Comment No. 2: International Technical Assistance Measures (1990) E/1990/23 para 10

¹⁷⁹ Shaheed (n 3) para 68

Obligation to create an international enabling environment for the realization of the HR2S

- **Science in development cooperation:** International development programs must include the enhancement of the realization of the HR2S in recipient States.¹⁸⁰ In other words, those programs must include a scientific component, this means that there have to be programs directed to improving scientific conditions and endeavours of third countries. States must commit to the development, conservation and diffusion of Science for benefit of mankind. Therefore, they must ensure that Science has a central role in projects for development cooperation, in line with the Human Rights approach that has been presented alongside this paper. In concluding observations the Committee has repeatedly call upon States parties to allocate 0.7% of their Gross National Product (GNP) to development cooperation.¹⁸¹ When designing such programs, together with issues like health, education or empowerment of women, donor States should also take Science in due consideration in order to strengthen the scientific capacity of recipient countries. As a conclusion, enough resources and cooperation efforts should be placed in enhancing the scientific capacity of a recipient State.

- **International scientific standards and plans of action:** States must coordinate to develop a global scientific plan of action and implement international standards, in order to redress inadequacies and to monitor the steps taken. For instance, States should jointly design a plan of action targeted to rectify research agendas, in order to direct Science towards social and inclusive purposes, as to fulfil the needs of the poorer or to tackle neglected diseases. Similarly, States have also the obligation to assist other States in coordinating and managing their scientific

¹⁸⁰ Sepulveda (n 128) 285

¹⁸¹ This commitment was taken by richest States in 1970 under the auspices of the UN and even if it is not a legally binding obligation, the Committee has repeatedly urged States to meet that percentage. Also the SDG reinforce that commitment by stating that: *Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of ODA/GNI to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries.*

duties. Therefore, in the case of the HR2S, there is a clear obligation to assist a State in developing an adequate scientific plan of action, encompassing a timetable, goals, allocation of resources, a research agenda, incentives, rigorous scientific education schemes or mechanisms to monitor potential risks, among others. However, in that assistance, the donor State should not surpass the limit of interfering too much in a State's affairs.

Obligation to design joint research programmes

Between the obligation to create an enabling environment and to contribute to building scientific capacity, we can find the obligation to design joint research programs. As stated above, partnership and cooperation are essential and indisputable elements of Science. Research cannot be contained within national borders. Science as such knows no frontiers or boundaries. Thus, seeking transnational cooperation for the advancement of Science is part of this discipline. Accordingly, the Declaration on the Use of Science and Scientific Knowledge adopted by the UNESCO enumerates different kind of collaborative methods that States have the obligation to adopt:

- Academic and training programmes between universities. Including arrangements for the promotion of postgraduate training or programmes to facilitate exchange of knowledge.
- Shared research within the framework of multilateral programmes of different organisations (UNESCO, WFO, UNDP, WHO...) For instance, international panels for the scientific assessments of complex issues. UNESCO has different projects promoting South-East European scientific cooperation in astronomy, phytochemistry, physics and mathematics, among others.¹⁸²
- Joint research programmes between States and regions in order to share information, practices, methodologies. These programmes shall include:

¹⁸² Unesco, 'Basic and Engineering Sciences' (*UNESCO Office in Venice*, 2016) <<http://www.unesco.org/new/en/venice/natural-sciences/basic-engineering-sciences/>> accessed 10 July 2017

research networks, international fellowships and grants and development of scientific research centres in developing countries,¹⁸³

This Declaration also states the following:

*The developed world has a responsibility to enhance partnership activities in science with developing countries and countries in transition. Helping to create a critical mass of national research in the sciences through regional and International Cooperation is especially important for small States and least developed countries. Scientific structures, such as universities, are essential for personnel to be trained in their own country with a view to a subsequent career in that country. Through these and other efforts conditions conducive to reducing or reversing the brain drain should be created.*¹⁸⁴

Therefore, States have an obligation to enhance collaboration and joint programmes with developing countries. However, it is difficult to argue that States have an obligation to embark on these kind of projects that can be violated if they remain passive. In fact, is hard to measure to what extent a State has complied with this obligation, as it is a very relative concept.

Obligation to monitor potential harmful effects

There is an obligation to cooperate among States in order to monitor adverse effects of Science and prevent its misuse. Concerning this, the present extraterritorial obligation calls for the internalization of risks assessments and risk monitoring. The International Law Commission establishes that: “*States concerned shall cooperate in good faith and, as necessary, seek the assistance of one or more competent international organisations in preventing significant transboundary harm or at any event in minimizing the risk thereof*”¹⁸⁵ As seen before, the HR2S has a dimension of protection that should be observed in order to avoid adverse effects of scientific processes or outcomes. However, this protection cannot be contained merely within

¹⁸³ UNESCO, ‘Declaration on Science and the Use of Scientific Knowledge’ (1999) para 36

¹⁸⁴ Ibid 35

¹⁸⁵ International Law Commission, Draft Articles on the Prevention of Transboundary Harm from Hazardous Activities (2001) available at http://legal.un.org/ilc/texts/instruments/english/commentaries/9_7_2001.pdf Art 4

national borders. In this regard, the international community has to take measures to prevent, monitor and inform about negative impacts of scientific activities, also when these impacts affect the population or territory of another State. As an example of good practice, the European Food Security Agency (EFSA) has created a cooperation program with the Chilean Food Quality and Safety Agency in order to dialogue and collaborate in risks assessments and risk monitoring.¹⁸⁶ For this purpose, the project focuses on collecting, sharing and analysing data in risk assessments of food quality.¹⁸⁷

Obligation to contribute to building scientific capacity

As it is enshrined in the Maastricht Principles, notwithstanding the responsibility that each State has to fulfil its rights in its country, the international community must also contribute to it extraterritorially. That contribution shall be in accordance to their technical, technological and economic capacities and available resources, among others. The Declaration on Science and the Use of Scientific Knowledge states what follows:

*The building of scientific capacity should be supported by regional and international cooperation, to ensure both equitable development and the spread and utilization of human creativity without discrimination of any kind against countries, groups or individuals. Cooperation between developed and developing countries should be carried out in conformity with the principles of full and open access to information, equity and mutual benefit.*¹⁸⁸

This extraterritorial obligation includes the duty of States to strengthen research capacity and encourage transfer of scientific knowledge. One of the key examples that clearly reflects this sharing of technical, technological and economic capacities in the context of the HR2S is the issue of the transfer of technologies. This field would oblige States to transfer know-how, trained human capital, data, economic resources and infrastructure, among others. The TRIPS agreement, binding for all member States of the WTO, argues that:

¹⁸⁶ Efsa, 'Chile and EFSA enhance cooperation and risk assessments' (*European Food Security Agency*, 2016) <<https://www.efsa.europa.eu/en/press/news/161018-0>> accessed 1 July 2017

¹⁸⁷ Ibid

¹⁸⁸ Declaration on Science (n 182) para 35

“Developed country Members shall provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed country Members in order to enable them to create a sound and viable technological base.”¹⁸⁹

Following the same idea, the content of the goal number 17 aiming to strengthening sustainable cooperation in the framework of Sustainable Development Goals establishes as one of its targets to:

“promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed.”¹⁹⁰

This extraterritorial obligation has to be qualified and further developed. Not all technologies or resources have to be transferred, but only those linked to dignity and wellbeing of people. Accordingly, Chapman recognises that there are some technologies that are so essential to the welfare of the people, that it is presumable to affirm that their population have a collective right of access.¹⁹¹ Hence, the international community has a duty to assist countries in need by transferring vital knowledge and technologies, in order to allow them to invest in long term essential infrastructure, to redress inequalities or to counter health or humanitarian crises.¹⁹² She gives the example of simple water level sensors that perhaps could have detected and avoided the tragedy of the tsunami in the Indian Ocean in 2004.¹⁹³ In such circumstances, when the lives of many people are at stake, the international community has an obligation to contribute to the enhancement of scientific capacity, either by transferring technologies or by boosting their research projects through funding and grants.

¹⁸⁹ TRIPS article 66

¹⁹⁰ United nations, 'Sustainable Development Goal 17' (*Sustainable Development Goals*, 2017) <<https://sustainabledevelopment.un.org/sdg17>> accessed 1 July 2017

¹⁹¹ Chapman (n 1) 30

¹⁹² Ibid

¹⁹³ Ibid

GENERAL CONCLUSIONS

This paper has attempted to put forward the idea that Science is for all. In this paradoxical moment that this discipline is living, the HR2S appears as a way to redress inequalities and to put Science at the service of humanity. Hence, the Human Rights approach to Science is indispensable to balance the IP regime, to direct research agendas to more social purposes, or to guarantee an adequate scientific curricula in schools and universities of both developed and developing countries, among others. The relation between Science and Human Rights is not new and has varied over the decades. First, Science was seen as a threat or as an instrument for the realization of other rights. Then, even if it was recognised in the UDHR and the ICESCR, it was neglected by the international community. Later, when it started to be acknowledged, it was understood merely as a right to enjoy material outcomes, like drugs or technologies. In the last years, more inclusive approaches have been embraced, which advocate a broader scope of the concept of benefits and full access and participation for everyone. To put it in other words, as has been pointed out, the concept benefits does not only relate to application but also scientific knowledge, a powerful Public Good of humanity. In addition, the HR2S seeks to bring Science closer to humanity, by promoting involvement not only of professional scientists, but also of lay population in Science. In other words, the right to participate in Science does not only empower people to build a scientific career, but also to get involved in decision-making processes and to contribute to research in a non-professional way.

This interpretation of article 15 of the ICESCR and 27 of the UDHR is not a “creative” or naïve one. Even if it may seem too utopic and ambitious, it must be said that the ambition is already in those articles, not in the elucidation process itself. The objective now is to be loyal to the greatness and broadness of these two provisions and redress the limited status that it has been given over the decades. Moreover, this expanded interpretation is in line with the aims of the drafters of these documents, who already advocate a universal access to Science and participation without discrimination.

The HR2S deserves the attention it has been deprived of in the last decades. There is still a lot to do regarding its implementation, enforceability and justiciability, among others. For that purpose, from an academic perspective this Human Right needs

further elaboration and research. For instance, violations to the HR2S have to be identified, both in a national and international level. For the moment, the General Comment on article 15 will certainly contribute to its expansion and acknowledgement in an institutional level. This General Comment will definitely mark a turning point in the history if this Human Right, as it will empower and boost its position in the International Law arena. Some of the progressive and mind blowing ideas that were discussed in the debate on the General Comment in Geneva have been expressed in this paper. As can be deduced, this General Comment will have an ambitious and challenging approach, that will certainly benefit the implementation of the HR2S. As it happened with the General Comment on the Right to Water, a courageous initiative of the Committee can foster the recognition and implementation of the HR2S. Furthermore, UNESCO has to take the lead to fully embrace the HR2S and to use this term in its scientific projects and partnerships. In fact, the HR2S has to be made known by the international community. Good practices, scientific collaboration and recognition of the importance of Science are already common but they need to be endowed with a Human Rights language.

In an attempt to answer the question of why do we need a HR2S, this paper has analysed the four dimensions that this complex right encompasses, namely, access, participation, protection and International Cooperation. The notions of conservation, development and diffusion enshrined in article 15.3 advocate the expansion and advancement of Science and deserve further attention as they can empower the HR2S. Thanks to this analysis, the HR2S has emerged from the darkness and has acquired a full normative content, with specific rights and obligations for each of its dimensions.

Throughout that study, an important conclusion that we have found is that not every scientific application, component or information falls within the scope of the HR2S. It does not mean that every knowledge, every data or every scientific outcome has to be made available and accessible for all in a free basis. In other words, this Human Right does not try to ensure access to every scientific outcomes or knowledge, but only to those related to human dignity. This may seem a very relative and abstract threshold, as human needs increase and change over the years. By the same token, the HR2S does not promote a free Science or the destruction of the IP regime. This assumption is absolutely misleading and harmful for the recognition and reputation of

this right itself. Instead, the HR2S vindicates an affordable Science and a balanced IP regime, in line with other Human Rights and with the aforementioned notion of dignity.

The HR2S has a strong international component. On the one hand due to its nature, Science needs to be shared and cannot be constrained to a national level. It has a progressive character and it evolves and advances through collaboration. Moreover, scientific talent is widely and equally distributed in every part of the world. The capacity to wonder, to be creative, to discover and to seek answers are inherent faculties to human beings that need to be revealed and developed through scientific education, no matter the place of origin or social condition of the person. On the other hand, States have committed to International Cooperation in the field of esc rights, and more concretely in the scientific field. In this regard, article 15.4 strengthens the general obligation enshrined in article 2.1 of the ICESCR to cooperate internationally for the realization of esc rights. This double reference highlights the dimension of cooperation of the HR2S and has set the ground for the study of extraterritorial obligations in the context of the right in question. The present *lex ferenda* contribution has challenged the argument of States that transboundary cooperation does not trigger legal binding obligations, but just moral duties. When adhering to the ICESCR, States were committing to take steps, individually and through international cooperation to achieve progressively the full realization of esc rights. That commitment is not only an obligation of means, but it triggers a range of legal obligations that have to be observed. States cannot escape from this commitment. For example, in the case of the HR2S, States might not have recognised the obligation to contribute to building scientific capacity, but they have committed to International Cooperation that, in this Human Right in particular, is an obligation to fulfil deriving from that initial commitment.

This paper has tried to put forward this conception, by presenting a set of extraterritorial obligations of respect, protect and fulfil that States must observe in regards to the HR2S. For this purpose, Maastricht Principles have been studied and applied. These principles require further attention and recognition in International Law, as they have a full potential. In addition, it has been noticed that it is hard to measure whether States comply with their extraterritorial obligations regarding the scientific field. Consequently, this paper calls for the development of indicators to measure and study this issue.

As can be seen, there is still a lot to be done regarding the HR2S and its realization. However, recent academic efforts and the adoption of the General Comment will contribute to exploring the full potential of the HR2S, clarifying uncertainties, redressing inequalities and empowering people to fight for a Science at the service of humanity, a Science for all.

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