

Economic, social and cultural rights in the nuclear age: Focusing on vulnerable groups

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I. General Introduction

The aim of the present contribution is to analyze and stress the relevance of human rights law for the protection of the individual in the nuclear age.

The relevance of human rights to nuclear weapons has very recently been acknowledged officially, namely through the adoption of the new Treaty on the prohibition of nuclear weapons, in New York on 7th July 2017. Indeed, on several paragraphs, this treaty refers explicitly to human rights: first of all, in its preamble, where it states that:

“The States Parties to this Treaty (...) Reaffirming the need for all States at all times to comply with applicable international law, including international humanitarian law and international human rights law”.¹

Moreover, in its Article 6 § 1, on “victim assistance and environmental remediation”, it states:

“1. Each State Party shall, with respect to individuals under its jurisdiction who are affected by the use or testing of nuclear weapons, in accordance with applicable international humanitarian and human rights law, adequately provide age-and gender - sensitive assistance, without discrimination, including medical care, rehabilitation and psychological support, as well as provide for their social and economic inclusion.

Apart from those explicit references to human rights law, there are many other concepts or expressions, such as “victims” of nuclear weapons, including “hibakusha”, that are closely linked

¹ Preambular paragraph 8.

to human rights violations. In brief, the new treaty prohibiting nuclear weapons confirms the interactions between human rights law and nuclear weapons and related activities, such as testing of such weapons.

Moreover, on 30 October 2018, the UN Human Rights Committee (HRC), which is in charge of the implementation of the 1966 International Covenant on Civil and Political Rights (ICCPR), has adopted its General Comment (GC) no. 36 relating to the right to life (Article 6 ICCPR). It is in many respects a remarkable document and a new example for bridge-building between nuclear arms control and human rights. In paragraph 66, the HRC considers the threat and use of WMD, in particular nuclear weapons, incompatible with the right to life and reiterates the duties of the States Parties in the field of nuclear disarmament and non-proliferation. The adoption of this text is another proof for the tight relationship that exists between nuclear arms control and human rights law.

The present article will focus on economic, social and cultural rights in the nuclear age and will take into consideration, in the spirit of the 2017 Basel Conference, basically all nuclear activities that might raise human rights issues, namely the production of nuclear energy, in particular uranium mining (and milling) and the scenario of nuclear accidents, as well as testing of nuclear weapons. Moreover, an element that has gained ground in recent years is the recognition that the use of nuclear weapons, in particular if it triggers subsequent nuclear explosions in retaliation, would affect the whole planet, or at least entire regions in terms of development, economy, environmental pollution, climate change (“nuclear winter”) and human health. Those, more indirect consequences of the use of nuclear weapons are basically comparable to those caused during the production of nuclear energy, in particular uranium mining and the scenario of nuclear accidents, as well as testing of nuclear weapons. As a result, it makes sense to include them in the present study too.

In part I, the most relevant economic, social and cultural rights in the nuclear age will be presented. Part II will, following the logic of human rights law, focus on particularly vulnerable groups and highlight their specific problems facing nuclear activities.

II. Relevant economic, social and cultural rights in the nuclear age

A. General remarks

In this part, the most relevant economic, social and cultural rights for nuclear activities will be examined. This category of human rights is generally contrasted to civil and political rights, such as the right to life, the prohibition of torture, fair trial, right to family and private life, freedom of expression, of religion, assembly and association. The latter rights are, on the universal level, enshrined in the 1966 International Covenant on Civil and Political Rights, contrary to economic, social and cultural rights that are guaranteed by the 1966 International Covenant on Economic, Social and Cultural Rights.

Human rights, and in particular economic, social and cultural rights are often defined in terms of three types of duties:² the duty to “respect” these rights, namely, the negative duty not to interfere with rights and freedoms of individuals by State action.³ It has been suggested that, in the context of an armed attack, the obligation to “respect” entails ‘the obligation not to destroy minimal essential levels of economic, social and cultural achievements.’⁴ The second type of duty is to “protect” rights, namely, to adopt measures to prevent other individuals or groups from violating the integrity, freedom of action, or other human rights of the individual, including the prevention of infringements of his or her material resources.⁵ The third type is the duty to “fulfil” (or to “facilitate” or to “provide”), requiring the State to take the measures necessary to ensure for each individual within its jurisdiction opportunities to obtain satisfaction of the needs, recognized in the human rights instruments, which cannot be secured by personal efforts.⁶ In particular the first (obligation to respect) and third duty (obligation to fulfil) will play a role within the present study.

Even though there might be other rights turning out relevant in this field, the present study will focus on the rights to the highest standard of health (right to health) and the right to an adequate standard of living, in particular the right to food and to water.

² CESCR, General Comment No. 12 – Substantive Issues Arising in the Implementation of the International Covenant on Economic, Social and Cultural Rights, 1999, UN Doc. E/C.12/1999/5.

³ M. Gondek, *The Reach of Human Rights in a Globalising World: Extraterritorial Application of Human Rights Treaties*, Antwerp, 2009, p. 60.

⁴ W. Kälin and L. Gabriel, *Human Rights in Times of Occupation: the Case of Kuwait*, Bern, 1994, p. 24.

⁵ A. Eide, ‘Realization of Social and Economic Rights and the Minimum Threshold Approach’, *Human Rights Law Journal*, vol. 10(1-2), 1989, pp. 35-51, 37.

⁶ *Ibid.* See also Gondek, *op.cit.*, pp. 62-63.

B. Rights to the highest standard of health (right to health)

The right to the highest standard of health (hereafter; “right to health”) is recognized in numerous international and regional instruments,⁷ but the most comprehensive provision is contained in Article 12 § 1 of the ICECSR that reads as follows:

“The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.”

In its General Comment no. 14 on the “right to the highest attainable standard of health”, adopted in 2000, the Committee for Economic, Social and Cultural rights (CESCR) observed that:

“States should...refrain from unlawfully polluting air, water and soil, e.g. ...from using or testing nuclear...weapons, if such testing results in the release of substances harmful to human health.”⁸

This paragraph underlines the negative impact that nuclear testing might have on the enjoyment of the right to health. But how would, in concrete terms, nuclear explosions affect the right to health? As an example, the accident at the Chernobyl nuclear power plant in 1986 was the most serious incident involving radiation exposure. It caused the death, within a few days or weeks, of 30 workers and radiation injuries to over a hundred others. It also brought about the immediate evacuation of around 116 000 persons from areas surrounding the reactor and the permanent relocation, after 1986, of about 220 000 people from Belarus, the Russian Federation and Ukraine.⁹ Moreover, it caused serious social and psychological disruptions in the lives of those affected and vast economic losses for the entire region. Large areas of the three countries were contaminated and deposits of released radionuclides were measurable in all countries of the northern hemisphere.¹⁰ The number of thyroid cancers in individuals exposed in childhood, in particular in the severely contaminated areas, turned out to be considerably higher than expected

⁷ Regarding universal instruments see, inter alia, Article 25 § 1 of the Universal Declaration of Human Rights, Article 5 e) iv of the International Convention on the Elimination of All Forms of Racial Discrimination, Articles 11 § 1 f) and 12 of the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), or Article 24 of the Convention on the rights of the child (CRC).

⁸ CESCR, General Comment No. 14, The Right of the Highest Attainable Standard of Health (Article 12), UN Doc. E/C.12/2000/4, 11 August 2000, § 34.

⁹ Report of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), *op.cit.*, § 18.

¹⁰ *Ibid.*, and §§ 99 and seq.

based on previous knowledge and the high incidence and short induction period are considered unusual.¹¹ In a recent report,¹² the *German Affiliate of International Physicians for the Prevention of Nuclear War* (IPPNW) and the *Gesellschaft für Strahlenschutz*¹³ summarized the tragic consequences of the Chernobyl accident on the Ukrainian population as follows:

“Even though the lack of large-scale independent long-term studies does not permit a complete picture to be made of the current situation, a number of trends can be shown: a high mortality rate and an almost 100% morbidity rate can be observed among people, such as liquidators, who were exposed to high radiation levels. 25 years after the reactor catastrophe cancer and other diseases have emerged on a scale that, owing to the long latency period, might have appeared inconceivable immediately following the catastrophe.

To reduce the impact of a nuclear tragedy on people to mere cancer statistics would be too narrow and not responsive to the human suffering, in particular the psychological, endured by the affected population.¹⁴ It is relevant for the present study to highlight that the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health, Anand Grover, visited Japan in November 2012, in order to ascertain the country’s efforts to implement the right to health in the aftermath of the Fukushima nuclear accident of 11 March 2011. In his report, he stated that the nuclear accident in Fukushima has affected the right to health of evacuees and residents alike, and has had an impact on physical as well as mental health, particularly of pregnant women, older persons and children.¹⁵ He added that the evacuation had caused the breakdown of families and communities, and had given rise to mental health concerns.¹⁶

¹¹ *Ibid.*, § 102.

¹² S. Pflugbeil, H. Paulitz, A. Claussen and I. Schmitz-Feuerhake, ‘Health Effects of Chernobyl, 25 years after the reactor catastrophe’, Berlin, 8 April 2011, p. 8, <http://www.ratical.org/radiation/Chernobyl/HEofC25yrsAC.html>

¹³ Society for Radiation Protection (Engl.)

¹⁴ International Physicians for the Prevention of Nuclear War (IPPNW), Critical Analysis of the UNSCEAR Report ‘Levels and effects of radiation exposure due to the nuclear accident after the 2011 Great East-Japan Earthquake and tsunami’, 5 June 2014, p. 18, http://www.fukushima-disaster.de/fileadmin/user_upload/pdf/english/Akzente_Unscear2014.pdf

¹⁵ Report of the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health, Anand Grover, UN Doc. A/HRC/23/41/Add. 3, July 2013, § 11.

¹⁶ *Ibid.*

The Special Rapporteur also recalled that the right to health imposes on States the duty to mitigate the effect of nuclear accidents on the mental health of the victims by alleviating stress and anxiety caused by radiation exposure and separation of families.¹⁷ The effect of nuclear disasters on mental health was already documented by the incidents in Three-Mile Island as well as in Chernobyl.¹⁸ In fact, following the Chernobyl accident, women with young children were found to be most vulnerable to the effects on mental health of this nuclear tragedy, and the latter's negative consequences were still visible more than six years after the accident.¹⁹ Anand Grover also noted that the anxiety and stress of evacuees, residents and their families were attributable to the effects of radiation leakage on their health, in particular of children, the cost of evacuation and the loss of livelihoods, as well as the uncertainty of the future.²⁰

Other examples will be given in part III, focusing on the suffering of particularly vulnerable groups.

C. The right to an adequate standard of living, in particular the right to food and to water

The right to an adequate standard of living, including the right to food and to water, is recognized in several international instruments. Article 11 § 1 of the ICESCR contains the most comprehensive provision:

“The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions. The States Parties will take appropriate steps to ensure the realization of this right, recognizing to this effect the essential importance of international co-operation based on free consent.”

The Committee on economic, social and cultural rights devoted its General Comment No. 12 of 1999 to the right to adequate food, in which it recognizes that this right is of ‘crucial importance

¹⁷ *Ibid*, § 36. See also, in this regard, T. Morris-Suzuki, ‘Introduction’, in Greenpeace, Lessons from Fukushima, 2012, pp. 11-13, <http://www.greenpeace.org/slovenia/Global/slovenia/Dokumenti/Lessons-from-Fukushima.pdf>

¹⁸ See, for instance, E.J. Bromet et al., ‘Mental health of residents near the Three Mile Island reactor: A comparative study of selected group’, *Journal of Preventive Psychiatry*, vol. 1(3), 1982, 225-276.

¹⁹ J. Havenaar et al., ‘Long-term mental health effects of the Chernobyl disaster: an epidemiologic survey in two former Soviet regions’, *American Journal of Psychiatry*, vol. 154(11), 1997, pp. 1605-1607, 1606.

²⁰ Report Grover, *op.cit.*, § 38.

for the enjoyment of all rights’.²¹ The aspect of accessibility of adequate food is linked to the concept of safety, considering that stocked foodstuffs may have been contaminated in different ways, especially in case of human-made disasters.²² This plays obviously a significant role in a scenario of a detonation of nuclear weapons. Indeed, such a detonation would have a particularly harmful impact on the environment,²³ and the effects of radiation on the human would be exacerbated by a nearly irreversible contamination, leading to the loss of livelihood and lands.²⁴ According to UNDP and UNICEF, the radioactive fallout from the Chernobyl disaster contaminated large areas of Ukraine, Belarus and Russia, ‘affecting life in rural communities for decades to come’ and having led to prohibition of agriculture and forestry in wide areas.²⁵

In its General Comment no. 15 on the right to water (2002), the Committee on economic, social and cultural rights noted that the right to water, even if not mentioned explicitly in Article 11 § 1, falls within its ambit, in particular because water constitutes one of the most fundamental elements of human survival.²⁶

Moreover, Article 14 § 2 of the CEDAW stipulates that States shall ensure to all women the right to

“enjoy adequate living conditions, particularly in relation to....water supply”;²⁷

²¹ CESCR, General Comment 12, Right to adequate food (Twentieth Session, 1999), UN Doc. E/C.12/1999/5 (1999), para 1.

²² *Ibid.* See also A. Telesetsky, An evolving role for law and policy in addressing food security before, during and after a disaster, in: S.C. Breau, K.L.H. Samuel (eds.), Research Handbook on Disasters and International Law, Edward Elgar, Cheltenham (UK) and Northampton (MA, USA), 2016, pp. 251-271, in particular 260-264, concerning the right to food during a disaster.

²³ Acheson R., Wider Consequences – Impact on Development. In: Fihn B (ed), Unspeakable Suffering: The Humanitarian Impact of Nuclear Weapons. Geneva 2013, 59-65, 63.

²⁴ *Ibid.*

²⁵ The Human Consequences of the Chernobyl Nuclear Accident: A Strategy for Recovery, A Report Commissioned by UNDP and UNICEF with the support of UN-OCHA and WHO, 2012; available under:

<http://www.unicef.org/newsline/02chernobylstudy.htm>

²⁶ § 3. See also, for the right to water in disasters more generally, Hà Lê Phan and I.T. Winkler, Water security, in: S.C. Breau, K.L.H. Samuel (eds.), Research Handbook on Disasters and International Law, Edward Elgar, Cheltenham (UK) and Northampton (MA, USA), 2016, pp. 295-318, and M. Aronsson-Storrier and H. Salama, Tackling water contamination: development, human rights and disaster risk reduction, in: S.C. Breau, K.L.H. Samuel (eds.), Research Handbook on Disasters and International Law, Edward Elgar, Cheltenham (UK) and Northampton (MA, USA), 2016, pp. 319-335.

²⁷ See also Article 15, in particular its letter a), of the Protocol to the African Charter on Human Rights and Peoples’ Rights on the Rights of Women in Africa.

and Article 24 § 2 c) of the Convention on the rights of the child (CRC) requires States Parties to combat disease and malnutrition through, inter alia,

“the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution.”²⁸

The right to water has also been recognized by international human rights courts. The ECtHR, for an example, has also significantly contributed to the emergence of a right to water, namely under the label of the right to respect for private and family life and home, in particular as regards the contamination of groundwater. To name just two examples:

In the case of *Tatar v. Romania* (2009), the applicants alleged that the technology used by a gold and silver mining company, using cyanide, was dangerous to their lives and that, on January 30, 2000, a large quantity of polluted water containing sodium cyanide and other substances was leaked into various rivers and traveled 800 km in 14 days, crossing several borders and polluting drinking water sources. The ECtHR decided that Romania had failed to assess adequately the potential risk of the mining activities and to take measures to guarantee the applicant’s right to respect of their private and family life under Article 8 ECHR.²⁹

In the case of *Dubetska and Others v. Ukraine* (2011), the Court concluded that there had been a violation of Article 8 ECHR, since the State had failed to protect the applicant’s home and private and family life from excessive pollution generated by two State-owned industrial facilities, a coal-mining enterprise and a coal-processing factory. It was established that the operations of the two facilities had adverse environmental effects, due for instance to the penetration of heavy metals into the soil and groundwater.³⁰

Why is this all relevant in the nuclear field? Regarding water contamination by nuclear weapons, General Comment no. 15, mentioned above, states explicitly that the obligation to “respect” the right to water includes the prohibition of diminishing and polluting water, for example through the “use and testing of weapons”.³¹ In a nuclear explosion, radioactivity penetrates the

²⁸ See also Committee on the rights of the child, General Comment no. 15 (2003) on the right of the child to the enjoyment of the highest attainable standard of health (Article 24), CRC/C/GC/15, April 17, 2013, § 48.

²⁹ *Tatar v. Romania*, no. 67021/01, 27 January 2009. See in particular §§ 121-125.

³⁰ *Dubetska and Others v. Ukraine*, no. 30499/03, 10 February 2011.

³¹ *Ibid.*, § 21.

atmosphere, soil and water.³² In the desert of Nevada, where clean water is already scarce, US underground nuclear testing conducted between 1951 and 1992 is estimated to have contaminated more than 6 trillion liters of groundwater.³³ Adequate access to safe food and potable water was also a problem on the Marshall Islands, which were the place of numerous nuclear weapons tests, as will be explained below.

Uranium mining and milling, due to the disruption of the land surface, has a highly adverse impact on both surface and underground water bodies. Probably the main problem of uranium mining and milling is that it may impact, due to the disruption of the land surface, both surface and underground water bodies. First of all, the process of uranium mining requires an immense amount of water; considering that the mining is often undertaken in already dry environments, this represents a serious problem to the local population and environment.³⁴ After its use in uranium mining, the water – now heavily contaminated – is often dumped back into rivers and lakes.³⁵ The uranium so ingested through respiration, drinking water or food – in particular agricultural products such as milk and meat³⁶ – finds its way to the excretory organs, the kidneys, where it can cause a glomerular and tubular wall degeneration. Research has demonstrated that regions with elevated groundwater uranium levels have an increased incidence of renal and other forms of cancer.³⁷

³² R. Levy Guyer, 'Radioactivity and Rights – Clashes at Bikini Atoll', *Am J Public Health*, vol. 91(9), September 2001, pp. 1371-1376, 1373, <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1446783/pdf/0911371.pdf>
See also M. Kunz and J.E. Viñuales, 'Environmental approaches to nuclear weapons', in G. Nystuen, S. Casey-Maslen and A. Golden Bersagel (eds.), *Nuclear Weapons Under International Law*, Cambridge, 2014, pp. 269-291, 284.

³³ S. Kellman, 'Nuclear Fallout: Nevada Takes Hard Look at Contaminated Groundwater From Historic Testing Grounds', *Water News*, 15 November 2009, <http://www.circleofblue.org/2009/world/news-nuclear-fallout-nevada-takes-hard-look-at-contaminated-groundwater-from-historic-testing-grounds/>

³⁴ According to Greenpeace and other NGOs, the mines in Niger had used 270 billions liters of water over 40 years of operation.

³⁵ In South Africa, it was reported that the West Rand Basin (the smallest of the mining basins) had fully flooded with acid mine water for ten years (2002-2012) and acid mine water had flowed uncontrolled and untreated during this period in the receiving environment. The acid water in the basin contained uranium, manganese, aluminium, copper and other toxic and potentially radioactive metals (M. Liefferink, Uranium Mining in South Africa: environment and human rights, in: Rosa Luxemburg Stiftung and legal and human rights Centre, Uranium mining, impact on health and environment. Dar es Salaam 2014, pp 31-33, 31 and f).

³⁶ S. Pflugbeil, 45 years of Uranium mining in the heart of Europe – powers and politics against humanity and nature, in: Rosa Luxemburg Stiftung and legal and human rights Centre, Uranium mining, impact on health and environment. Dar es Salaam 2014, pp. 50-52, 51.

³⁷ A. Uhl, The impact of uranium on kidneys and general health aspects, in: Rosa Luxemburg Stiftung and legal and human rights Centre, Uranium mining, impact on health and environment. Dar es Salaam 2014, pp. 21-23, referring to S.E. Wagner et al., Groundwater uranium and cancer incidence in South Carolina, *Cancer Causes Control*, Vol. 1, 2011, pp. 41-50.

Apart from the direct health effects of contaminated water, its broad consumption harms the mining region both ecologically and economically. The extraction of water can lead to a reduction of the groundwater table and to desertification, as well as to the death of plants and animals. As a result, the traditional means of subsistence for the local population, such as fishing or cattle grazing, is threatened as a consequence of the destruction of the entire – often fragile – ecosystem.³⁸ And even though the mines are closed and uranium is no longer extracted, the health risks remain. Usually, mines are flooded with water that is contaminated with radioactivity and heavy metals and slowly seeps into the groundwater.³⁹

To sum up, I conclude that economic, social and cultural rights, and in particular the jurisprudence of international courts in the field of environmental harm and the right to private and family life and home, are very relevant in the field of nuclear activities.

III. The special need and protection of particularly vulnerable groups

A. General remarks

Disasters are not equal in their impact.⁴⁰ In other words, certain groups of persons are particularly vulnerable for human rights violations, including when caused by nuclear activities. Even though that other groups of vulnerable people can be singled out,⁴¹ for the purpose of the present contribution, the focus will be on indigenous peoples, women and children.

³⁸ IPPNW, Fact Sheet Uranium Mining 4, Health Effects of Uranium Mining, Basel 2010. See also D. Sweeney, Half-lives and half-truths: the Australian experience with uranium mining, in: Rosa Luxemburg Stiftung and legal and human rights Centre, Uranium mining, impact on health and environment. Dar es Salaam 2014, 56-59, 58, and for the example of Tanzania, A. Lyamunda, Uranium mining in Tanzania: implication for Bahi and Manyoni districts, in: Rosa Luxemburg Stiftung and legal and human rights Centre, Uranium mining, impact on health and environment. Dar es Salaam 2014, pp. 61-63.

³⁹ IPPNW, Fact Sheet Uranium Mining 4, cited above.

⁴⁰ M. Crock, The protection of vulnerable groups, in: S.C. Breau, K.L.H. Samuel (eds.), Research Handbook on Disasters and International Law, Edward Elgar, Cheltenham (UK) and Northampton (MA, USA), 2016, pp. 383-405, at 383.

⁴¹ Crock (*ibid.*), as an example, enumerates women, children, persons with disabilities, older persons and minority groups (pp. 395-402). See in this sense also Bizzarri, who adds to this list the group of indigenous peoples (M. Bizzarri, Protection of Vulnerable Groups in Natural and Man-Made Disasters, in: A. de Guttry, M. Gestri and G. Venturini (eds.) International Disaster Response Law, Asser Press/Springer, The Hague 2012, pp. 381-414.

It is obvious that the protection of indigenous peoples, women and children is particularly relevant in the context of nuclear weapons. Interestingly, the nuclear ban treaty, adopted on July 7th in New York, recognizes in its preamble that nuclear weapons “have a disproportionate impact on women and girls, including as a result of ionizing radiation” (par. 4) and stresses “the disproportionate impact of nuclear-weapon activities on indigenous peoples”.

The following sections are dedicated to those three groups of people.

B. Indigenous peoples, in particular the right to their traditionally owned land

As far as indigenous peoples are concerned, it is well documented that they are particularly vulnerable to human rights abuses and that their rights have been violated by nuclear testing, for instance on the Marshall Islands, as well as by past and actual uranium mining and milling.⁴² Apart from the direct consequences, in particular on their health as workers, the means of subsistence of indigenous communities are destroyed by the contamination of land and water in the context of uranium mining. Moreover, cultural customs and traditions are heavily disturbed by the mining activities on their land.⁴³ This kind of difficulty affects many communities worldwide including the Tuareg in Niger, the Uraon in India, Lakotas or Navajo in the United States and Aborigines in Australia.⁴⁴ In both cases, uranium mining and nuclear testing, displacement is frequent.

The concept of property of indigenous peoples is fundamentally different from the western one, in particular insofar as it exceeds the idea of possession and appropriation of an object. In fact, property is defined in cultural and spiritual terms.⁴⁵ All indigenous peoples have a particular relationship with their land. Article 26 of the Declaration on the Rights of Indigenous Peoples contains and underlines the importance of the right of these communities to their own land. In

⁴² See IPPNW, Fact Sheet Uranium Mining 1; available under: http://www.nuclear-risks.org/fileadmin/user_upload/pdfs/factsheet_E_1.pdf.

⁴³ Sweeney 2014, p. 57

⁴⁴ *Ibid.* See, concerning the Aborigines in Australia, C. Tatz, A. Cass, J. Condon, G. Tippet, Aborigines and uranium: monitoring the health hazards, AIATSIS Research Discussion Paper, 2006, and as far as, in particular, the Sami in Lapland are concerned, see L. Watters, Indigenous peoples and the environment: convergence from a nordic perspective, *UCLA J. Envtl. L. and Pol’y.*, Vol. 20, 2001-2002, pp. 237-304.

⁴⁵ D. Shelton, ‘The Inter-American Human Rights Law of Indigenous Peoples’, *U. Haw. L. Rev.*, vol. 35, 2013, pp. 937-982, 968, and S.J. Rombouts, *Having a Say, Indigenous Peoples, International Law and Free, Prior and Informed Consent*, Oosterwijk 2014, p. 67.

addition, its Article 25 recognizes the special, spiritual relationship that indigenous peoples maintain with their traditionally owned lands in the following terms:

“Indigenous peoples have the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources and to uphold their responsibilities to future generations in this regard.”⁴⁶

The Inter-American Commission and Court on Human Rights have rendered important decisions in this field (not related to nuclear activities). In the judgment of *Xákmok Kásek Indigenous Community v. Paraguay*, the Court referred to the special, spiritual relationship that the indigenous populations maintain with their ancestral lands, emphasizing that:

[t]he culture of the members of the indigenous communities corresponds to a specific way of life, of being, seeing, and acting in the world, constituted on the basis of their close relationship with their traditional lands and natural resources, not only because these are their main means of subsistence, but also because they are an integral element of their cosmology, their spirituality and, consequently, their cultural identity.⁴⁷

More specifically with respect to access and quality of water, the Court stated as follows:

196. (...) the Court considers that the measures taken by the State (...) have not been sufficient to provide the members of the Community with water in sufficient quantity and of adequate quality, and this has exposed them to risks and disease.

One of the distinctive features of indigenous peoples lies in their high spirituality. Their lifestyles, traditions and cultural practices necessitate a positive interaction with the forces of Nature. One has to be in harmony and equilibrium with oneself and with Nature.⁴⁸ Moreover, their reaction to the confrontation with industrial uranium mining is obviously shaped by what they know and have experienced in their traditional, rural universe. When facing today’s problems, indigenous communities try to understand them through their sacred traditions that go

⁴⁶ The ILO Convention no. 169 contains a similar guarantee (Article 23 § 1): “Handicrafts, rural and community-based industries, and subsistence economy and traditional activities of the peoples concerned, such as hunting, fishing, trapping and gathering, shall be recognized as important factors in the maintenance of their cultures and in their economic self-reliance and development. Governments shall, with the participation of these people and whenever appropriate, ensure that these activities are strengthened and promoted.”

⁴⁷ *Xákmok Kásek Indigenous Community v. Paraguay*, IACHR, para. 174, Judgment of 24 August 2010.

⁴⁸ For instance, a primary goal of the Navajo in the United States of America is ‘to walk in harmony’ (*hozho nashaaddo*) (C. A. Markstrom, P.H. Charley, Psychological effects of technological/human-caused environmental disasters, examination of the Navajo people and uranium mining, Albuquerque, 2006, pp. 89-111, 95).

back to ancient times and are rooted in the close relationship to their natural environment.⁴⁹ It is obvious that the confrontation with modern uranium mining and milling projects and techniques poses serious difficulties for them.

Similar consequences can be drawn in the context of nuclear testing of the Marshall Islands. As an example, the Enewetak people had been resettled during the period of nuclear testing. When they finally returned to their atoll in 1980, their sufferings did not end there; indeed, the severe damage caused to the land by the nuclear weapons testing, the residual radiation contamination on over large parts of the Enewetak Atoll, the inability to grow adequate food crops for local consumption, the inability to use the land for productive economic purposes, and the required reliance on canned imported food all continue to prolong the hardship to the Enewetak people. Professor Carucci, quoted above, expressed this misery as follows:

“Since their return in 1980, Enewetak people have struggled with life on the New Enewetak, a place reminiscent of their homeland yet, in so many ways, a radically different location than the atoll on which people lived in the 1940s (...) They cannot be at home in the very land that is their home since the contours of the land are no longer the same, its productive capacity is lacking, and, without those products, the wide array of day-to-day activities that allowed people to make local products into canoes, and sleeping mats, and foods, have lost their meaning (...).”⁵⁰

The Marshallese are only one example of indigenous peoples who were deprived of their lands, even if only temporarily sometimes, had to sacrifice their traditions and were pushed into a life style to which they could never get used to as a consequence of nuclear testing.

C. Women’s rights, in particular reproductive rights

⁴⁹ E. Yazzie-Lewis, J. Zion, Leetso, the powerful yellow monster, a Navajo cultural interpretation of uranium mining, in: D. Brugge, T. Benally, E. Yazzie-Lewis (eds.), *The Navajo people and uranium mining*, Albuquerque, 2006, 1-10, p. 5 and f.

⁵⁰ In the Matter of the People of Enewetak, et al., NCT No. 23-0902.

It is generally recognized that nuclear activities affect women more than men.⁵¹ In other words, even though the harmful health effects of ionizing radiation are very serious for both genders, the empirical data suggest differentiated levels of health damage for women and girls, on the one hand, and for men and boys, on the other.⁵²

Recent research on the health impact of exposure to radiation in the Semipalatinsk region shows a considerable gender difference in cancer rates, in particular esophagus cancer and higher rates of breast cancer.⁵³ Moreover, studies have concluded that pregnant women are particularly susceptible to thyroid cancer, a fact that affects not only them, but also their infants.⁵⁴ It is also well documented, and has been mentioned above, that women, especially pregnant women, suffer disproportionately from the consequences of the tragic accident in Fukushima, in particular as far as their mental health is concerned.⁵⁵ Venturini suggests that psychological impacts of radiation contamination are more serious for women and girls, potentially causing a variety of mental illnesses.⁵⁶ She adds that nuclear weapon detonations often prompt evacuation and displacement and that displaced women, in particular, are at a higher risk of sexual and gender-based violence.⁵⁷ In addition, the social stigma associated with radiological exposure also seriously marked women among the survivors of the atomic bombing in Japan, in particular due to marriage discriminations because of their perceived contamination.⁵⁸

A special challenge poses nuclear activities to the reproductive rights of women. Again the special rapporteur on the right to health on the Marshall Islands drew attention to the alarming high rates of stillbirths, miscarriages, congenital birth defects and reproductive problems, including subsequent inability to conceive. Those women who gave birth frequently experienced

⁵¹ Disasters in general affect women in a disproportionate way. As an example, it is reported that four times more women than men were killed by the earthquake and tsunami that struck in the Indian Ocean in December 2004, killing 230 000 people across 14 countries (Crock, *op.cit.*, p. 383).

⁵² G. Venturini, Gender Perspective on Nuclear Weapons and Human Rights, in: J.L. Black-Branch and D. Fleck (eds.), *Nuclear Non-Proliferation in International Law*, Vol. IV, Springer/Asser Press, The Hague 2019, pp. 99-115, 105.

⁵³ S. Bauer et al., 'Radiation Exposure due to Local Fallout from Soviet Atmospheric Nuclear Weapons Testing in Kazakhstan: Solid Cancer Mortality in the Semipalatinsk Historical Cohort', 1960-1999, *Radiation Research*, vol. 164, 2005, pp. 409-419, 416 and seq.

⁵⁴ Report Georgescu, *op.cit.*, § 27.

⁵⁵ See above...

⁵⁶ Venturini, p. 105.

⁵⁷ *Ibid.*

⁵⁸ *Ibid.*

fetal disorders leading to the death of the baby, resulting in shame and trauma from which they still suffer today.⁵⁹

Regarding reproductive rights, Article 14 (Health and reproductive rights) of the Protocol to the African Charter on Human Rights and Peoples' Rights on the Rights of Women in Africa, stipulates that the States Parties "shall ensure that the right to health of women, including sexual and reproductive rights, is respected and promoted." This duty includes, *inter alia*, the right to decide whether to have children and the number of children.⁶⁰ Similarly, the ECtHR stated that the decision to have (or not to have) children is covered by the right to respect private and family life (Article 8 ECHR).⁶¹ As a consequence, States Parties are under the primary duty to refrain from restricting natural production.⁶² Violations of this right were found by the Court in cases involving forced sterilization of women belonging to the Roma community.⁶³ The comparison with the situation of female victims of nuclear testing, in particular on the Marshall Islands, appears even more relevant since in both situations the inability to have more children has led to stigmatization within their communities.⁶⁴

In light of what precedes, it can be concluded that the choice of women to have children is significantly reduced as a result of the negative impact, for instance, of nuclear testing on their reproductive health. They therefore suffer interferences in the enjoyment of their human rights. An overall assessment cannot, here neither, be limited to mere cancer statistics, but has to take into account social, economic and political factors.

D. Children's rights, in particular the right to life, health and development

⁵⁹ Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, Calin Georgescu, A/HRC/21/48/Add.1, § 30.

⁶⁰ Article 14 § 1 b).

⁶¹ See cases of *Evans v. United Kingdom* (GC), No. 6339/05, ECHR 2007-I, §§ 71-72, *Dickson v. United Kingdom* (GC), No. 44362/04, ECHR 2007-V, §§ 13 and 66; and *S.H. and Others v. Austria* (GC), No. 57813/00, ECHR 2011, in particular §§ 82 and 114).

⁶² M. Nowak, *UN Covenant on Civil and Political Rights, CCPR Commentary*, Kehl/Strasbourg/Arlington, 2nd ed., 2005, p. 533.

⁶³ See, in particular *V.C. v. Slovakia*, No. 18968/07, 8 November 2011.

⁶⁴ See, in this regard, the ECtHR in *V.C. v. Slovakia*, quoted above, § 118: "...The applicant suffered serious medical and psychological after-effects from the sterilization procedure, which included the symptoms of a false pregnancy and required treatment by a psychiatrist. Owing to her inability to have more children the applicant has been ostracized by the Roma community."

Closely linked to the rights of women are the rights of children, in particular the right to life, to the highest attainable standard of health and to development. A confirmation of this relationship can be found in Article 24 § 2 d) of the CRC, which directs States Parties to ensure access to essential health services for the child and his or her family, including pre- and post-natal care for mothers. It is well recognized that the key determinants of children's health, nutrition, and development depend on the mother's health and the role of the parents.⁶⁵

As far as infant and child mortality is concerned, Article 12 § 2 a) of the ICESCR provides that States Parties must take those steps necessary for "the provision for the reduction of the still-birth rate and of infant mortality and for the healthy development of the child." In spite of the vagueness of those formulations, the Committee on the rights of the child stated unambiguously that "States have an obligation to reduce child mortality."⁶⁶ A similar duty derives from Article 14 § 2 a) of the African Charter on the Rights and Welfare of the Child, adopted on July 11, 1990.

The legal obligation to reduce infant and child mortality rates is moreover confirmed by Article 6 CRC (Right to life, survival and development) that reads as follows:

- "1. States Parties recognize that every child has the inherent right to life.
2. States Parties shall ensure to the maximum extent possible the survival and development of the child."

The Committee on the rights of the child expects States to interpret "development" in its broadest sense as a "holistic concept, embracing the child's physical, mental, spiritual, moral, psychological and social development."⁶⁷

Children everywhere are suffering from the impacts of toxics and pollution. These impacts materialize in different forms, at various stages of life, and from very diverse routes of

⁶⁵ Committee on the Right of the Child, General Comment no. 15 (2003), mentioned above, § 18.

⁶⁶ General Comment no. 15 (2013), § 33.

⁶⁷ General Comment no. 5 (General measures of implementation of the CRC), UN Doc. CRC/GC/2003/5, November 27, 2003, § 12.

exposure.⁶⁸ Moreover, children have higher levels of exposure and are also more sensitive to it, which makes them more vulnerable than adults. Such impacts can be irreversible and can even be passed down from one generation to the next.⁶⁹ This is obviously diametrically opposed to what is prescribed by Article 3 § 1 of the CRC, namely that the best interest of the child must be a “primary consideration” in the interpretation and application of the rights enshrined in that instrument.⁷⁰ The American Academy of Pediatrics reported in 2018 that several tissues (e.g., thyroid, bone marrow, breast, and brain) are more sensitive to radiation in children than in adults, and children are at higher risk of radiation-related cancers of these tissues. Other tissues do not appear to be more sensitive in children than in adults (e.g. lung and bladder).⁷¹

The impact of nuclear testing has affected children and young adults in a disproportionate way. Among the population in the vicinity of Semipalatinsk, high rates of cancer, including leukemia, infant mortality, and stillborn children were reported.⁷² An important part of the local population is considered to have reproductive cells negatively affected by nuclear testing, leading to genetic problems among their offspring. Many children are born with considerable bone deformations, some without arms and legs.⁷³ Similar observations can be made regarding the children of the Marshall Islands. The special rapporteur, Calin Georgescu, noted an unusual high incidence of stunted growth as well as a high number of instances of thyroid cancer.⁷⁴

Moreover, a report, published in 2011, on the consequences of the Chernobyl accident on the Ukrainian population highlights the particularly serious consequences for children:

⁶⁸ UN Human Rights Council, Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, 2 August 2016, § 2, A/HRC/33/41, see:

<https://www.refworld.org/docid/57d6a3154.html>

⁶⁹ *Ibid.*

⁷⁰ Article 3 § 1 of the CRC: “In all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration.”

⁷¹ M.S. Linet, Z. Kazzi, J.A. Paulson, Pediatric Considerations Before, During, and After Radiological or Nuclear Emergencies, *Pediatrics*, 2018, Vol. 142(6):e20183001, see:

<http://pediatrics.aappublications.org/content/pediatrics/142/6/e20183001.full.pdf>

⁷² D.J. Peterson, *Troubled Lands: The Legacy of Soviet Environmental Destruction*, Boulder, San Francisco and Oxford, 1993, p. 203.

⁷³ R. Elegant, “Fallout”, *The National Review*, 2 September 2002, pp. 30-32, 32.

⁷⁴ Report Georgescu, quoted above, § 31.

“Particularly tragic is the fate of the thousands of children who were born dead or died in infancy, who were born with malformations and hereditary diseases, or who are forced to live with diseases they would not have developed under normal circumstances...The genetic defects caused by Chernobyl will continue to trouble the world for a long time to come – most of the effects will not become apparent until the second or third generation.”⁷⁵

Finally, the 2011 Fukushima accident is another, more recent example witnessing for the particular challenges that pose nuclear accidents to the health and human rights of affected children. The special rapporteur for the right to health in the aftermath of the Fukushima, Anand Grover, observed in 2013 that children are most at risk of thyroid cancer caused by radioactive iodine intake.⁷⁶ Certain reports, established approximately at the same time, observed a rise in infant mortality in Japan and thousands of children were diagnosed with thyroid gland nodules or cysts that had to be classified as pre-cancerous.⁷⁷ There were also the first documented cases of thyroid cancer in children.⁷⁸

Japanese government policies in Fukushima have been criticized heavily by civil society, in particular concerning human rights of children. The organization “Human Rights Now”, in its 2017 submission to the Committee on the rights of the child, stated that the government has generally failed to establish free, periodic, and comprehensive health checks for affected persons.⁷⁹ In its submission to the Committee in October 2018, the Japanese organization “3.11 Fund for Children with Thyroid Cancer”, criticized the current health survey system used by Fukushima prefecture, which has not been construed to accurately assess the thyroid cancer incidence of children who had resided in the prefecture at the time of the nuclear accident. It is argued moreover that this system does not allow tracking all children who were in the prefecture

⁷⁵ Pflugbeil et al., p. 8.

⁷⁶ Report Grover, quoted above, § 28.

⁷⁷ H. Paulitz, W. Eisenberg and R. Thiel, “Health Consequences Resulting from Fukushima”, Berlin, 6 March 2013, p. 2.

⁷⁸ *Ibid.*

⁷⁹ Human Rights Now, “Shadow Report Submission: Children’s Rights in Japan”, CRC 76th Session, 2017, see http://hrn.or.jp/wpHN/wp-content/uploads/2017/11/CRC_Shadow_Report_Submission_HRN_Nov_2017.pdf

during the accident, losing track of those who do not fit the official designation of evacuee who have cut ties with the prefecture.⁸⁰

At the session held in January 2019, members of the Committee on the rights of the child raised multiple issues to the Japanese delegation in relation to the Fukushima nuclear accident.⁸¹ These included children's rights to information and the consequences of the accident and questions over long-term health monitoring, and the measures taken to take account of thyroid cancer rates among children of Fukushima.⁸² In its report of 1 February 2019, the Committee made seven recommendations to the government of Japan, including to "(a) reaffirm that radiation exposure in evacuation zones is consistent with internationally accepted knowledge on risk factors for children; (b) continue providing financial, housing, medical and other support to evacuees, children in particular, from the non-designated areas [and] ... (d) conduct comprehensive and long-term health checkups for children in areas with radiation doses exceeding 1mSv/year."⁸³

In a recent report, published in March 2019, Greenpeace argues that the current Japanese government policy is clearly in violation of its obligations under the CRC by not preventing childhood exposure to radioactive contamination in Fukushima resulting from the 2011 nuclear disaster, and recalling that this obligation flows naturally from the right of children to physical integrity and from the fact that such exposure makes it nearly impossible to realize every child's right to the highest attainable standard of health, to survival and to maximum development, given their extreme sensitivity to pre- and postnatal exposure.⁸⁴

In view of what precedes, it is obvious that nuclear testing or other activities producing harmful nuclear contamination, such as uranium mining, as well as nuclear power plant accidents, are

⁸⁰ 3.11 Fund for Children with Thyroid Cancer submission to the CRC, October 2018.

⁸¹ The 80th Session Committee on the rights of the child, consideration of Japan - 2346th Meeting, January 16-17 2019, can be viewed at:

<http://webtv.un.org/meetings-events/watch/consideration-of-japan-2346th-meeting80th-session-committee-on-the-rights-of-the-child/5990465578001/?term=> and <http://webtv.un.org/meetingevents/watch/consideration-of-japan-contd-2347th-meeting-80th-session-committee-on-the-rights-of-thechild/5990588517001/?term=>

⁸² Greenpeace, *On the Frontline of the Fukushima Nuclear Accident: Workers and Children. Radiation risks and human rights violations*, March 2019, p. 44, see:

<https://reliefweb.int/report/japan/frontline-fukushima-nuclear-accident-workers-and-children-radiation-risks-and-human>

⁸³ A/HRC/23/41/Add.3), see:

https://tbinternet.ohchr.org/Treaties/CRC/Shared%20Documents/JPN/CRC_C_JPN_CO_4-5_33812_E.pdf

⁸⁴ Greenpeace, 2019, *op.cit.*, p. 44.

hardly compatible with the duty to create an environment in which children can develop and grow up healthy and happily.⁸⁵

IV. General conclusions

In the present study, the rights of potential victims who would suffer from the radioactive fallout from a regional nuclear war, but also past and current victims of nuclear testing and uranium mining, have been assessed in light of economic, social and cultural rights, which are likely to be breached by such activities. This category of rights is in practice more difficult to enforce than civil and political rights, but they have nevertheless to be interpreted and implemented in good faith by the States parties. Concrete examples and worth considering for future litigation purposes are, in particular, the cases decided by the ECtHR in environmental cases, including the right to water. Such rights pose significant limits to the freedom of States regarding nuclear activities.

In addition, the particular vulnerability of certain groups of people has been stressed and deserves special attention. It has been explained that indigenous peoples, women and children suffer disproportionately from the consequences of a regional nuclear war, nuclear weapons tests, from uranium mining or a nuclear accident such as Fukushima or Chernobyl. It has, however, also been noted that these are by far not the only vulnerable groups of people. The author also finds it important that recent trends in the field of the protection of the right to health recognize more and more that the suffering endured by “nuclear victims” cannot be reduced to mere cancer statistics and that appropriate efforts must respond to the psychological harm too, as indicated by the report of Anand Grover concerning Fukushima.

Finally, the victimization of indigenous peoples, women and children raise the topic of rights of future generations, in light of the fact, for instance, that after Chernobyl, many children were born with congenital deformations and considering that the latency period for many types of cancers is 25-30 years.⁸⁶ As has been admitted by the ICJ in its 1996 advisory opinion, nuclear

⁸⁵ See, in this regard, also General Comment no. 15, mentioned above, which states that “States should take measures to address the dangers and risks that local environmental pollution poses to children’s health in all settings.” (§ 49).

⁸⁶ Pflugbeil et al., p. 5.

weapons have the “potential to destroy all civilization and the entire ecosystem of the planet” and their use “would be a serious danger to future generations.” The Court added that

“[i]onizing radiation has the potential to damage the future environment, food and marine ecosystem, and to cause genetic defects and illness in future generations.”⁸⁷

The fact that, by 2050, many cases of illnesses may be diagnosed that will have been caused by the Chernobyl nuclear catastrophe of 1986, confirms the threat of long-term harm caused by radioactivity and, therefore, the impact of a potential nuclear war on present and future generations.⁸⁸

⁸⁷ ICJ Reports 1996, § 35.

⁸⁸ Pflugbeil et al., p. 8.