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危险物质及废料的无害环境管理和处置对人权的影响问题特别报告员关于访问丹麦和格陵兰的报告*

秘书处的说明

秘书处谨向人权理事会转交危险物质及废料的无害环境管理和处置对人权的影响问题特别报告员对丹麦和格陵兰的访问报告。本报告根据理事会第36/15号决议提交，特别报告员在报告中介绍了他于2017年10月2日至13日进行国别访问的调查结果和相关建议。

* 本报告逾期提交，以反映最新动态。

Report of the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes on his mission to Denmark and Greenland**

Contents

			Page
I.	Introduction		3
II.	The situation in Denmark		3
	A.	National legal and institutional framework	3
	B.	Protection of children's right to the highest attainable standard of health	5
	C.	Protection of workers	6
	D.	Information and public participation	8
	E.	Extraterritorial impacts of shipbreaking	9
	F.	Extraterritorial impacts of pesticide exports	11
III.	The situation in Greenland		12
	A.	Legal and institutional framework of self-government	12
	B.	Pollution of the Arctic environment and climate change	13
	C.	Military activities	14
	D.	Mining initiatives	16
	E.	Challenges of waste management	18
IV.	Conclusions and recommendations		18
	A.	Denmark	18
	B.	Greenland	20

** Circulated in the language of submission only.

I. Introduction

1. In the present report, submitted pursuant to Human Rights Council resolution 36/15, the Special Rapporteur on the implications for human rights of the environmentally sound disposal of hazardous substances and wastes shares his findings and recommendations from his mission to Denmark and to the self-governing territory of Greenland from 2 to 13 October 2017.

2. The Special Rapporteur expresses his deepest gratitude to the Government of Denmark for the invitation to visit the country and its exemplary cooperation. In particular, the Special Rapporteur thanks the Ministry of Environment and Food for organizing meetings with authorities in Copenhagen, and the Greenland self-government authorities for organizing meetings with government entities and authorities in Ilulissat and Nuuk.

3. In Denmark, the Special Rapporteur met representatives of the Ministries of Foreign Affairs, Defence, Environment and Food, and Health, the Environmental Protection Agency and the Danish Institute for Human Rights. From the business community, he met representatives of the Confederation of Danish Industry, Danish Shipping and A.P. Moller-Maersk. He also met representatives of the European Environment Agency and multiple civil society representatives working on human rights, labour rights, equitable trade and environmental issues.

4. In Greenland, the Special Rapporteur met representatives of the Ministries of Independence; Foreign Affairs; Fisheries, Hunting and Agriculture; Mineral Resources and Labour; Industry and Energy; Nature and Environment; and Health, as well as representatives of the Environmental Agency for Mineral Resource Activities. He also visited the Parliament of Greenland and met parliamentarians on the committees on the environment and foreign affairs. The Special Rapporteur also met members of the Human Rights Council, representatives of the Inuit Circumpolar Council and civil society representatives.1

5. The Special Rapporteur thanks all of the civil society organizations, companies and individuals in Denmark and Greenland whom he met for their time and cooperation in sharing information on their views and experiences.

6. The present report contains separate observations on the situation in Denmark and Greenland, given the specificities of the legal and institutional frameworks in place in the self-governing territories of Denmark. Because the Special Rapporteur was unable to visit the Faroe Islands, the situation there is not addressed in the report. The last section of the report provides conclusions and recommendations with respect to the observations made on Denmark and Greenland.

II. The situation in Denmark

A. National legal and institutional framework

7. The Constitution of Denmark guarantees a number of civil and political and human rights. Nevertheless, the level of incorporation of international human rights instruments, in particular instruments associated with economic, social and cultural rights, into national legislation, is considered insufficient (see CRC/C/DNK/CO/5, paras. 5 and 6, and E/C.12/DNK/CO/5, para. 4). The European Convention on Human Rights is the only human rights treaty that has been incorporated into Danish law to date. In 2014, an expert committee established by the Government presented an assessment of the implications of incorporating additional human rights instruments into legislation, with most of its members favouring such incorporation. Civil society organizations have expressed their disappointment that the only result of the committee's work was that the Government decided to accede to the third Optional Protocol to the Convention on the Rights of the

Child.[1] The Government indicates that, although the treaties are not incorporated into law, they are applied nationally by the courts and other relevant authorities (see A/HRC/32/10/Add.1).

8. Denmark has ratified most global human rights treaties. Two notable exceptions, however, are the Optional Protocol to the International Covenant on Economic, Social and Cultural Rights and the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families. The Special Rapporteur underlines the importance of ratifying both instruments, noting the special relevance of the Optional Protocol to the International Covenant to enhancing the protection of various rights often affected by hazardous substances and wastes, as well as the particular vulnerability of migrant workers to exposure to hazardous substances. Denmark regularly collaborates with international human rights mechanisms and has issued a standing invitation to the special mechanisms appointed by the Human Rights Council to visit the country. The Danish Institute for Human Rights, the national human rights institution, has A status under the principles relating to the status of national institutions for the promotion and protection of human rights (Paris Principles).

9. Denmark is a party to all of the global treaties relating to toxic chemicals and wastes and has actively championed the improvement of global standards at the regional and global levels. The regulatory system for protection from exposure to hazardous substances and the management of wastes is framed by European Union legislation and supported by additional national norms and mechanisms. Denmark works with Nordic, European (European Union, European Environment Agency and Registration, Evaluation and Authorization of Chemicals system) and global bodies to improve protection from exposure to toxic chemicals. As detailed below, the national experience with research on and the regulation of chemicals and other hazardous substances has contributed to the advancement of regulations and practices at the European and global levels.

10. The Ministry of Environment and Food is the main authority in charge of regulatory and research activities in the areas of environmental protection, farming and food production. Within the Ministry, the Environmental Protection Agency is the leading entity promoting protection from air, noise and waste-related pollution and from exposure to hazardous chemicals. The Danish Veterinary and Food Administration, within the same Ministry, carries out inspections on the presence of hazardous substances, including pesticides,[2] in food products, making recommendations to producers, importers and exporters. All inspections of farms regarding pesticide-related issues are managed by a single authority, the Danish AgriFish Agency. Occupational health and safety are promoted by the Danish Working Environment Authority, which is responsible for compliance with the standards thereof, under the auspices of the Danish Ministry of Employment. Continued ad hoc interministerial coordination at the national level, led by the Ministry of Environment and Food, is highlighted as a good practice to address the challenges of contamination of food and the environment resulting from pesticides and other toxics.[3]

11. National legislative instruments, norms and policies are framed by European Union regulations aimed at providing protection from exposure to hazardous substances and wastes. Often, as detailed below, Danish norms in such areas as the control of pesticides and other toxic substances go beyond European Union norms, providing incentives for regional improvements.

12. The Special Rapporteur is impressed by the societal value placed on the protection of people and the environment from toxic exposures. Denmark has championed freedom from toxic exposures for several years, with clear recognition in its national action plan that the improvement of international standards for toxic chemical production and use is

[1] Joint stakeholder submission, universal periodic review of Denmark, twenty-fourth session of the Human Rights Council, January–February 2016, Copenhagen, 22 June 2015.

[2] The present report uses the following World Health Organization definition of pesticides: chemical compounds that are used to kill pests, including insects, rodents, fungi and unwanted plants (weeds).

[3] Denmark, Ministry of Environment, “National Implementation Plan: Stockholm Convention on Persistent Organic Pollutants”.

essential, given the country's reliance on imported goods. The country's promotion of a non-toxic environment, which the Special Rapporteur views as an essential component of the right to a healthy environment, has influenced the European Union-wide strategy for a non-toxic environment.[4]

B. Protection of children's right to the highest attainable standard of health

13. Denmark has achieved considerable progress nationally and internationally in the adoption of specific measures to protect children, and women of reproductive age, from toxic exposures. In general, children have higher levels of exposure than adults and are also more sensitive to the adverse effects of exposure to hazardous substances. States have a clear duty to take protective measures to minimize the exposure of children and, thus, women of reproductive age to pollution and toxic chemicals (see A/HRC/33/41). For decades, Denmark has applied the principles of prevention and precaution to protect children from toxic threats, often leading to improved standards of protection both in Denmark and abroad.

14. One of the most notable contributions of Denmark to protecting children from toxic exposures comes from its work on endocrine-disrupting, or hormone-disrupting, chemicals. Scientific evidence of the pervasive health impact of endocrine-disrupting chemicals and the urgent need to increase controls and restrictions to protect human health and, in particular child development, has emerged in the past two decades.[5] Exposure to such chemicals poses a distinct threat to the rights of children to life, health, maximum development and physical integrity, among others. Endocrine-disrupting chemicals have been linked to conditions such as declining sperm count, early puberty in girls and breast cancer. In 2002, Denmark adopted its first strategy in the field of endocrine-disrupting chemicals and combination effects. Current action plans are organized around three main areas: knowledge-building and the development of test methods, action-oriented investigations and regulation.

15. Significant investments have been made in research. In the 1990s, researchers in Denmark identified effects on male reproductive health possibly related to exposure to endocrine-disrupting chemicals during fetal development. In 2008, the Government established the Centre on Endocrine Disruptors to generate and disseminate scientific knowledge on the chemicals.

16. The Centre on Endocrine Disruptors has facilitated research in areas including the exposure of pregnant women, the combination effects on male and female hormone systems, options for grouping endocrine-disrupting chemicals for expedited regulatory action and the effects of those chemicals on the aquatic environment. Regarding the combination, or "cocktail", effect on young children of daily exposure to a mixture of toxic chemicals, Denmark has conducted research[6] identifying the deficiencies in individual risk assessment models for certain hazardous substances under real-world conditions. The research is important for improving measures for the protection of particularly vulnerable groups, such as women of childbearing age and children.

17. Measures adopted at the national level have often preceded similar measures taken by the European Union and have sometimes been hindered by the slower adoption of protective measures at the European Union level. In 1999, Denmark adopted a ban on all

[4] Vanessa Zainzinger, "Sweden and Denmark's influence on EU policy", Global Business Briefing, September 2014.

[5] A.C. Gore and others, "EDC-2: The Endocrine Society's second scientific statement on endocrine-disrupting chemicals", *Endocrine Reviews*, vol. 36, No. 6 (December 2015).

[6] Denmark, Environmental Protection Agency, *Survey and Health Assessment of the Exposure of 2 Year-olds to Chemical Substances in Consumer Products*, Survey of Chemical Substances in Consumer Products, No. 102 (Copenhagen, 2009) and *Exposure of Pregnant Consumers to Suspected Endocrine Disruptors*, Survey of Chemical Substances in Consumer Products, No. 117 (Copenhagen, 2012).

phthalates in toys and personal care products for children under 3 years of age. In 2007, the European Union adopted a ban on the use of only six phthalates in that context. In 2012, Denmark announced its intention to work towards a broader national ban on the use of phthalates, which, unfortunately, was blocked by the European Commission, using the European parameter as a means of lowering the level of protection.[7] In 2011, Denmark became the first country in the world to ban propylparaben and butylparaben in all personal care products for children up to 3 years of age.

18. The Government has also used taxes on hazardous substances to push for the further reduction of exposure, including taxes on pesticides, chlorinated solvents, chlorofluorocarbons, nickel-cadmium batteries, soft polyvinyl chloride and certain phthalates.

19. Since 2012, Denmark has pressured the European Union to adopt a set of criteria for endocrine-disrupting chemicals that would be applicable to all relevant legislative areas, including those relating to cosmetics, pesticides and industrial chemicals. In 2013, the Directorate-General for Environment of the European Union proposed criteria for the regulation of such chemicals, which Denmark supported but other members viewed as too stringent. The pesticide industry was particularly concerned, claiming that the criteria could prohibit the use of 40 per cent of its products, which indicated the extent to which control of endocrine-disrupting chemicals had lagged behind the state of the science on the issue. In 2016, the European Commission published its proposed criteria for the identification of endocrine-disrupting chemicals, which was criticized by many in the scientific community, including endocrinologists. Denmark joined the reaction against the criteria proposed, while noting that the proposal required unprecedented and scientifically unjustified levels of evidence, was inconsistent with corresponding legislation and lacked a precautionary aspect.[8]

20. The European Commission adopted criteria for identifying endocrine-disrupting biocides in 2017, with relevance to other pesticides and industrial chemicals. The criteria were criticized by medical specialists[9] for their limited scope and for requiring an excessively high burden of proof of how endocrine disruption has adverse effects. Concerns continue to be raised about a lack of transparency and the limited scope of participation for independent public researchers in the process. The Danish authorities are reportedly continuing to ask European regulators how to proceed, given the level of uncertainty.

C. Protection of workers

21. The approach of Denmark to protecting workers from exposure to hazardous substances includes the adoption of legislation, monitoring, continued investment in research and the creation of mechanisms for knowledge-sharing and collaboration among scientists, policymakers, business enterprises and civil society.

22. The legal and policy framework for protecting workers from exposure to hazardous substances includes the Working Environment Act, the Offshore Safety Act, the Act of Certain Offshore Installations and the Working Environment Authority Guidelines, which indicate how the law on occupational safety and health should be interpreted. In 1995, Denmark ratified the Occupational Safety and Health Convention, 1981 (No. 155) of the International Labour Organization. The law on the protection of workers from exposure takes a preventive approach, with concern focused on eliminating or minimizing exposure as a first step.

[7] Henriette Jacobsen, “Denmark defies EU with planned ban on phthalate chemicals”, EURACTIV, 27 August 2012.

[8] Esben Lunde Larsen, “Denmark’s environment minister: why the Commission’s EDCs criteria fall short”, Global Business Briefing, September 2016.

[9] Endocrine Society, “EU criteria fall short of protecting public from endocrine disrupting chemicals”, 7 June 2018.

23. The Danish Working Environment Authority is responsible for conducting occupational health and safety inspections of all companies, communicating information relating to occupational safety and health and drafting regulations. The rights of workers in relation to remedies for workplace accidents and occupational diseases are covered under the Consolidated Workers' Compensation Act No. 278 of 14 March 2013. Employers and occupational medical service providers have a duty to report cases of industrial injury to the Labour Market Insurance Board, which assesses, investigates and makes decisions on claims. The establishment of a list of occupational diseases is considered to have facilitated workers' access to remedies.

24. In a 2017 review of the literature on occupational safety and health,[10] it was concluded that the introduction of legislation, combined with activities relating to the enforcement of labour inspection, contributed to a reduction in injuries and fatalities and improved compliance with regulations.

25. The legislative requirement to substitute less hazardous substances or materials for more hazardous ones, even if the effects of the hazardous substances are insignificant, seems to have contributed in particular to progress made in protecting workers and, consequently, consumers, from exposure. The publication of a list of undesirable substances, the substitution of which is encouraged, has further improved the protection of workers.

26. The experience of protecting the right of workers to safe and healthy working conditions reflects the country's overall strategy regarding the promotion of a non-toxic environment and continuously identifying and eliminating hazardous chemicals and is a relevant source of knowledge of the multiple instruments that may be utilized by Governments.

27. The Ministry of Environment and Food publishes annually detailed and disaggregated statistical data on pesticide use.[11] Research conducted in Denmark has served to raise awareness of the need to increase levels of protection. A 2015 study on the implications of the exposure of pregnant women working in greenhouses to pesticides, for example, identified adverse effects on the neurodevelopment of their children, even though the exposure occurred only during early pregnancy and under well-regulated working conditions.[12]

28. The Special Rapporteur acknowledges the efforts of Denmark to promote occupational safety and health through cooperation with other Governments, to which he attaches great importance, given the transnational production and disposal chains of Danish businesses. Among other activities, through a 2016 project in Bangladesh, an expert group on occupational safety and health was established in the Department of Inspection for Factories and Establishments of the Government of Bangladesh. The Special Rapporteur welcomes such cooperation, but was disappointed to note that the efforts to cooperate did not include support for the shipbreaking industry in Bangladesh or elsewhere, notwithstanding the substantial impact of Danish businesses in this sector on the rights of foreign workers. He encourages further efforts by Danish businesses enterprises to ensure that all workers are protected from exposure to toxic substances in their supply chains, among other concerns regarding workers' rights.

[10] J.H. Andersen and others, "Systematic literature review on the effects of occupational safety and health (OSH) interventions at the workplace", report to the Danish Working Environment Authority, Copenhagen, August 2017.

[11] See http://eng.mst.dk/chemicals/pesticides/pesticides-statistics.

[12] Helle R. Andersen and others, "Occupational pesticide exposure in early pregnancy associated with sex-specific neurobehavioral deficits in the children at school age", *Neurotoxicology and Teratology*, vol. 47 (January–February 2015).

D. Information and public participation

29. Information is the cornerstone of efforts to respect and protect human rights from toxic exposures.

30. A relevant initiative for knowledge-sharing and informing the development of norms and policies is the establishment of the Chemicals Forum of Denmark. The Forum promotes dialogue among authorities, industry, consumer organizations and other relevant stakeholders sharing information in the products area. Collaboration with the Central Customs and Tax Administration and the Danish Safety Technology Authority helps to promote the enforcement of regulatory decisions made at the Forum. In the same space, experts may raise alerts about potentially harmful substances to be studied or eliminated and discuss practical challenges to ensuring the elimination of those chemicals.

31. The mobile phone application Tjek Kemien, developed in 2014, helps consumers to gain some control of their exposure to toxic chemicals and use their collective purchasing power to drive the adoption of safer chemicals in a variety of consumer products, such as toys, electronics, clothes and furniture, that could contain toxic substances. The application sends a request for information on the presence of various substances of very high concern, such as those linked to cancer, mutations and reproductive harm. The manufacturer is required to provide the information within 45 days, free of charge, and offer guidance on the safe use of the product in accordance with European Union Registration, Evaluation and Authorization of Chemicals regulation. Danish consumers have reportedly used the application nearly 120,000 times since its creation,[13] and more than 1,000 companies have provided information. In more than 7,000 cases, the consumer has received an answer right away.[14] The application supported the improvements made by industry aimed at avoiding the use of substances of very high concern for the purpose of either increasing consumer confidence or avoiding the costs of non-compliance. The use of the application has gradually decreased, possibly because of delays in receiving information and the challenges associated with obtaining responses from companies abroad. A similar application has been developed in Germany, and the European Union is supporting a Europe-wide version.[15]

32. The Danish Consumer Council invests in the promotion of testing for the presence of undesirable substances in multiple consumer products and in the dissemination of information thereon among consumers and retailers. Through the Council's project "Think Chemicals", the content of a very wide range of products, such as body lotions, toys, deodorants and food containers, is examined. The results of the tests conducted by the Council over the years are made available online.[16] Testing processes help to raise the awareness of the overall population, the result of which is that manufacturers and retailers are sometimes persuaded to adopt measures to ensure that the products offered are safer. The Special Rapporteur was informed that local companies tended to be very collaborative in finding safer alternatives, while some global giants, which were proportionally affected less by the Danish market, were less keen to do so. The coordination of data collection in Denmark with similar processes in other locations in Europe is also helping organizations to push for greater protections at the European Union level.[17]

[13] Tammy Lovell, "Danish Consumer Council says SVHC app is a success", Chemical Watch, 27 March 2018.

[14] Tiiu Bräutigam, "Danish app for consumers a big success", European Chemicals Agency Newsletter, No. 1 (February 2015).

[15] Tammy Lovell, "EU-wide app to learn from Danish project problems", Chemical Watch, 13 March 2018.

[16] See http://kemi.taenk.dk/english.

[17] Niels Søndergaard, "Fast food packaging contains unwanted fluorinated substances", Danish Consumer Council, 9 March 2017.

E. Extraterritorial impacts of shipbreaking

33. It is perhaps outside of the continent where Danish business activities have given rise to the most serious impacts on human rights. Victims of transnational rights abuses perpetrated by businesses, in particular with respect to occupational exposure to toxic substances, face various obstacles in seeking effective remedy. The challenges include proving damages, establishing causality, high costs and, potentially, a lack of independence of judicial systems. States have a duty to address these and other extraterritorial impacts of businesses domiciled in the State's territory or subject to its jurisdiction in order to prevent the denial of justice and ensure the right to effective remedy of victims abroad (see E/C.12/GC/24).

34. Denmark, with one of the world's largest shipping sectors, has at times contributed to the development of sound practices in the dismantling of ships. In 2017, it ranked seventh in a global ranking of operator nations.[18] The Danish company A.P. Moller-Maersk is a world leader in the sector; as of October 2018, it had a global market share of 17.7 per cent.[19]

35. The extremely poor working and environmental conditions prevailing in most shipbreaking yards remain of great concern to the Special Rapporteur (see A/HRC/12/26). South Asian beaches are a regular destination for the disposal and dismantling of vessels, resulting in serious environmental damage and human rights violations and abuses. In 2017, it was estimated that 543 large ships, or 80 per cent of the worldwide total, had been dismantled on the beaches of Bangladesh, India and Pakistan. Unsafe conditions predominate; as of October 2018, at least 24 workers reportedly died while working in shipbreaking in South Asia, a statistic that does not include deaths, diseases and disabilities resulting from toxic exposures.

36. The Government expressed its commitment to promoting the safe recycling of ships by becoming the seventh country to ratify the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009.[20] In 2013, the European Union adopted a regulation on ship recycling,[21] increasing the requirements established through the Hong Kong Convention by requiring all ships calling at European Union ports to carry an inventory of hazardous materials and requiring European Union flagged ships to be dismantled only in accredited facilities. At the time of the Special Rapporteur's visit to Denmark, the European Union was conducting a second assessment in the first process of accreditation of shipyards worldwide.

37. Danish shipping companies have repeatedly indicated their willingness to ensure the safer dismantling of their ships. Notably, in 2006, Maersk abandoned the practice of exporting ships to South Asian beaches for recycling, effectively prohibiting the practice of beaching. In 2016, however, the company reversed that position, resuming the selling of vessels for dismantling on the beaches of Alang, India, where ships continue to be dismantled under deplorable conditions.

38. Explaining their decision to return to the selling of ships for dismantling in Alang, representatives of Maersk and Danish Shipping emphasized to the Special Rapporteur the slowness of the evolution of the international regulatory framework, which placed the companies at a competitive disadvantage, and a lack of definition of the European Union accreditation process. They indicated that the yards selected in Alang had greatly improved their ability to dismantle ships without contaminating the area, as well as their working conditions. They explained that the decision to return to the area had been made only after the verified adoption of safety requirements and that the intent had been to promote

[18] Danish Shipping, "Danish shipping: Facts and figures", December 2017.

[19] Statista, "Leading ship operator's share of the world liner fleet as of October 30, 2018".

[20] The Convention will enter into force 24 months after ratification by 15 States, representing 40 per cent of world merchant shipping by gross tonnage, combined maximum annual ship recycling volume not less than 3 per cent of their combined tonnage.

[21] Regulation (EU) No. 1257/2013 of 20 November 2013, *Official Journal of the European Union*, No. L 330/1.

progress in those difficult areas.[22] In March 2018, Maersk adopted what it called a "responsible ship recycling standard" with the express intent of ensuring that ships are decommissioned in accordance with human rights, labour and environmental standards. During the Special Rapporteur's mission to Denmark, Maersk stated that it did not have any environmental monitoring data. Through that process, a group of four shipyards in Alang received a statement of compliance for ship recycling facilities following audits conducted by the ship classification society ClassNK at the request of the industry.

39. Several concerns were raised by civil society organizations regarding the decision. It was noted that there were only 4 accredited shipyards in an area with more than 110 other facilities side by side. No accurate environmental data were available to confirm improvements because an abundant amount of malpractice remains around the accredited facilities. In addition, the access of relevant civil society organizations is strictly limited, and only a few pre-arranged visits with the full control of the companies involved were promoted.[23] Lastly, an independent investigative media and research organization made an unannounced visit to an accredited yard in Alang just after Maersk had sent its first vessels back to one of the yards considered to be improved. It reported that, contrary to what the companies had stated, parts of ships were still in direct contact with the beach and working conditions were clearly inadequate, with workers exposed to serious risks.[24]

40. The Special Rapporteur remains seriously concerned about the decision to return to Alang and the obvious social and environmental risks involved. While recognizing the importance of the accreditation efforts, he underlines that they should not replace official assessments. In the view of the Special Rapporteur, ClassNK is not sufficiently independent or balanced to address the issues at hand: its Administrative Council, Board of Directors, auditors, Technical Committee and Marine Committee are all directly or indirectly appointed from among shipowners, shipbuilders, manufacturers of marine machinery and equipment and others.[25] The credibility of the efforts is also damaged by the inability of the companies to persuade owners of the improved shipyards to authorize independent visits by civil society organizations, justifying their lack of transparency with a claim that negative reporting by non-governmental organizations had scared the owners.

41. The dismantling of the vessel *North Sea Producer*, jointly owned by Maersk and Brazil-based Odebrecht, provides further insight into the extremely poor human rights-related due diligence processes still in place in the shipping sector. The vessel was sold by Maersk and Odebrecht in April 2016 in the United Kingdom of Great Britain and Northern Ireland, while local authorities were informed by the owners that it was being purchased by a company based in Saint Kitts and Nevis, Conquistador Shipping Corporation, for use in Nigeria. After leaving Europe, however, the vessel was beached in Chittagong, Bangladesh, after being sold locally by Global Marketing Systems, a company involved in trading ships for dismantling on South Asia beaches. Radioactive residues were found in the ship while it was being dismantled in Chittagong, without even minimal protection. As a result of the contamination, the dismantling was halted, and investigations were begun in 2017 in Bangladesh and the United Kingdom. Civil society groups and the media reported that the owners had been aware that a company specializing in recycling was the actual purchaser of the ship, the sale to the Saint Kitts and Nevis company for further use was not real and the owners had failed to inform the authorities thereof.

42. The Special Rapporteur is particularly troubled by the reluctance of Maersk to engage in dialogue on the aforementioned episode. During his visit, company representatives indicated that only the joint venture North Sea Producer Company, which existed solely to administer the dismantled vessel, was capable of sharing information on the issue. In response to a communication on the same case sent by the Special Rapporteur

[22] Danish Shipping, "Alang is not just Alang", 7 May 2015.

[23] NGO Shipbreaking Platform, "Platform news — the new lobbyist of beaching, Maersk, ignores concerns of environmental and human rights experts", 6 October 2016.

[24] Claus Nordahl and Louise Maria Skotte Møller, "Maersk and the hazardous waste", Danwatch, 13 October 2016.

[25] See www.classnk.com/hp/en/about/organization/index.html.

and the Working Group on business and human rights, Maersk, signing as North Sea Producer Limited, vehemently denied knowing that the ship had been purchased to be scrapped and stated that it had believed the buyer would abide by clauses requiring responsible recycling of the vessel imposed in the context of the sale. Contradicting Maersk in responding to the same letter, and making no reference to the subsequently inoperative Conquistador Shipping, Odebrecht indicated that the ship had indeed been sold to Global Marketing Systems.[26]

43. The aforementioned episode underlines the considerable challenges of ensuring accountability in cases of beaching and the insufficient cooperation on the part of the private sector in that regard. Danish officials and industry representatives responded to the concerns raised by the Special Rapporteur by making constant references to the need to move ahead with the ratification of the Hong Kong Convention and to the lack of advancement of other States and the global industry. It is widely recognized, however, including by the same interlocutors, that the levels of protection established in the Hong Kong Convention are insufficient (see A/HRC/12/26, para. 62). This enables various actors to undermine the provisions of the Basel Convention that prohibit practices permitted in the Hong Kong Convention. It seems that the creation of the Hong Kong Convention has allowed for the continuation of abuse of South Asian workers and communities by the shipping industry, including Maersk. Even if industry initiatives to promote some level of self-regulation could be regarded as positive, they must not replace more robust efforts and the existing obligations of States and businesses under international law. It is crucial to recall that the Basel Convention is in force, with near universal ratification, and is still a source of the clear duties and responsibilities regarding the export of hazardous vessels for dismantling.

44. The States in which beaching is practiced have an obligation to ensure the protection of human rights in those locations. Nevertheless, Denmark, as well as other States hosting companies that are circumventing global obligations in order to dispose of their vessels under inadequate conditions, also has a duty to prevent such well-documented abuses. The inability of the Government and companies of Denmark to ensure more rapid improvement of the norms and practices relating to shipbreaking is particularly disturbing given that so much progress has been achieved with respect to protection from hazardous substances through dialogue between Danish authorities and companies operating in other sectors.

F. Extraterritorial impacts of pesticide exports

45. Taking into consideration the very advanced initiatives developed by Denmark in the protection of Danish workers and their communities from the harmful effects of toxic chemicals, in particular pesticides, the Special Rapporteur is disturbed by the lack of attention to the continued export of hazardous pesticides banned by Denmark to countries that have lower levels of protection from the adverse impacts of such pesticides on such rights as the human right to health. In some cases, products produced with the banned pesticides and other toxic chemicals can be imported back to Denmark.

46. Denmark-based Cheminova A/S is one of the main producers of one such substance, the insecticide malathion. Evidence is publicly available on the serious risks posed by malathion to the environment, in particular to water sources and biodiversity, as well as to human health.[27] In an analysis conducted in 2016 by the International Agency for Research on Cancer of the World Health Organization,[28] it was concluded that malathion is probably carcinogenic in humans, while strong evidence was identified that exposure to malathion-based pesticides is genotoxic. For these reasons, malathion use is restricted in the European Union. Nevertheless, as recently as 2017, Cheminova exported malathion to more than 40

[26] See joint allegation letter, case No. OTH 6/2018. Available at https://spcommreports.ohchr.org/TMResultsBase/DownLoadPublicCommunicationFile?gId=23623.

[27] See www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC32924.

[28] International Agency for Research on Cancer, "Malathion", *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans*, vol. 112 (January 2017).

countries outside the European Union.[29] In 2015, the Special Rapporteur expressed his concerns about the extreme impacts on the rights to food and water and on the livelihoods of communities after 500–1,000 kg of fish were killed in the La Pasión River, in Petén, Guatemala, reportedly owing to the heavy contamination of local waters with malathion (see A/HRC/31/79, case No. GTM 4/2015). Cheminova's practices in countries with weaker normative frameworks have been criticized.[30]

47. The exposure of communities and workers in States with weaker regulations to chemicals banned in Europe is an unacceptable exploitation of double standards (see A/HRC/33/41/Add.2, A/HRC/36/41 and A/HRC/34/48). As previously mentioned, additional legal instruments should be considered in Denmark in order to ensure that companies respect human rights in all of their operations and conduct human rights due diligence in relation to their national and international operations and supply chains, always using the highest levels of protection when operating in different jurisdictions.

III. The situation in Greenland

A. Legal and institutional framework of self-government

48. In 1953, Greenland became an integral part of the Danish Realm. Over the decades, its autonomy gradually expanded. The legal and institutional autonomy of the Greenland self-government is currently stipulated by the Act on Greenland Self-Government of 21 June 2009, in which it is recognized that the people of Greenland have the right to self-determination, the fields of responsibility and competences that Greenland can assume are described, and a new economic arrangement between Denmark and Greenland is introduced (see A/64/676, annex I).

49. Pursuant to the 1978 Greenland Home Rule Act, Greenland has already assumed legislative and administrative responsibility in a substantial number of fields, including the environment (except for the marine environment). Several areas, including the Constitution and foreign, security, defence, foreign exchange and monetary policy, cannot be assumed by the Greenland self-government owing to the Constitution of Denmark. The Act on Greenland Self-Government contains a comprehensive set of rules and regulations concerning cooperation between the Governments of Denmark and Greenland; Greenland must be consulted before the ratification of international agreements of specific relevance to Greenland.

50. Cooperation between the Governments of Denmark and Greenland also includes matters of foreign policy and military activity in Greenland. Greenland has established representation in Danish Embassies in countries and institutions of specific interest. Two members of the Parliament of Denmark represent Greenland. Most human rights treaties recognized by Denmark apply in Greenland, and the Government of Greenland submits reports to international human rights mechanisms. The mandate of the Danish Institute for Human Rights as a national human rights institution extends to Greenland. In 2013, Greenland established its own Human Rights Council, which it funds with the resources of that country and which cooperates with the Danish Institute for Human Rights. Local authorities have demonstrated great interest in strengthening existing mechanisms and maintaining regular collaboration with civil society.

51. A number of international environment-related conventions, including the Basel Convention, apply to Greenland. At the time of writing of the present report, Greenland had not informed Denmark that the Aarhus Convention would be applicable in Greenland.

[29] European Chemicals Agency, Export notifications database. Available at https://echa.europa.eu/information-on-chemicals/pic/export-notifications.

[30] Michael Søgaard Jørgensen and Bruno Milanez, "Pesticide export to institutionally vulnerable countries, who is responsible? An assessment of the practices and strategies of a Danish company in Brazil", paper presented at the International Symposium of Engineering Education, 19 and 20 July 2012.

Taking such a step would enhance the commitment of both countries to realizing the rights to information, meaningful participation and access to justice where there is a risk of exposure to hazardous substances and wastes.

52. The Ministry of Nature and Environment is charged with most of the responsibilities relevant to protection from hazardous substances and wastes. Within the Ministry, the Department of Environment and Contingency Management is the main authority managing the control of pollution, providing environmental permits and monitoring the implementation of regulations regarding pollution and waste. Within the same Ministry, the Environmental Agency for Mineral Resource Activities is the entity mandated to oversee the environmental impact of mineral-related activity.

B. Pollution of the Arctic environment and climate change

53. The Arctic region is affected in particular by global pollution. Several studies indicate that the region has been exposed to global pollution, with possible significant negative consequences for the health of the population of Greenland and other Arctic populations, including indigenous peoples.

54. Persistent pollutants were found in the Arctic region in the 1950s. The region receives disproportional amounts of pollutants, naturally transported northward from distant sources and deposited in Arctic ice. The vast majority of the toxics do not originate in the Arctic and, owing to their effect on human health and the environmental risks involved, and toxics were banned or restricted several decades ago.[31]

55. Serious concern is drawn to the issue of pollutants as a violation of the rights of the indigenous peoples of the Arctic region, in particular in contravention of article 29 of United Nations Declaration on the Rights of Indigenous Peoples prohibiting the storage or disposal of hazardous materials in their lands or territories without their free, prior and informed consent. Furthermore, the pollutants pose a clear risk to myriad other rights of indigenous peoples, including the rights to life, health, physical and mental integrity and self-determination, among others.[32] Global efforts to reduce exposure to such toxics, such as the Stockholm Convention on Persistent Organic Pollutants, are vital to protecting Arctic populations from "toxic trespass", or exposure without their prior informed consent. Nevertheless, existing global treaties on toxic chemicals do not ban or regulate the use or emission of many toxic chemicals that eventually contaminate the Arctic.

56. In a recent study,[33] it was confirmed that the frozen environment of the Arctic cryosphere has become a "reservoir of toxic chemicals". As climate change contributes to the melting of the ice sheet, the remobilization of the chemicals into the Arctic region, and thus the global environment, is under way. In another recent study, the Arctic Ocean was called a "dead end for floating plastics", and it was indicated that drifts of floating plastic, and their toxic constituents, dumped into oceans in other regions over the years are accumulating in polar latitudes.[34]

57. Concerns exist regarding the high level of contamination of traditional food sources in communities in Greenland. It has been reported that a wide spectrum of substances — industrial chemicals, pesticides, heavy metals and radionuclides — that reach high levels in the Arctic ecosystem have a great impact on marine mammals, which form an important part of the traditional Inuit diet, as contaminants are biomagnified up the food chain.[35] Such

[31] Banned toxics include the highly hazardous pesticides dichlorodiphenyltrichloroethane, aldrin and dieldrin and the toxic industrial chemicals polychlorinated biphenyls and hexachlorobenzenes.

[32] United Nations Declaration on the Rights of Indigenous Peoples, arts. 3, 7, 17, 21, 22 and 24.

[33] Aviaja L. Hauptmann and others, "Contamination of the Arctic reflected in microbial metagenomes from the Greenland ice sheet", *Environmental Research Letters*, vol. 12, No. 7 (July 2017).

[34] Andrés Cózar and others, "The Arctic Ocean as a dead end for floating plastics in the North Atlantic branch of the Thermohaline Circulation", *Science Advances*, vol. 3, No. 4 (19 April 2017).

[35] Inuit Circumpolar Council, "Food security across the Arctic", background paper of the Steering Committee of the Circumpolar Inuit Health Strategy, Canada, May 2012.

disproportional exposure is associated with risks to human health. In a recent study,[36] markedly higher levels of persistent pollutants were found in individuals who had the highest intake of traditional Inuit food, indicating a possible relationship between exposure to such pollutants and the prevalence of inflammation affecting the health of local communities. In another recent case study in that country, significant links between the risk of breast cancer and certain classes of toxic chemicals were identified and it was concluded that exposure to such pollutants could be a factor in increasing the risk of breast cancer in Inuit women.[37]

58. As a consequence of research findings, authorities in Greenland have promoted information campaigns to reduce risks in the traditional diet, in particular for pregnant and breastfeeding women. Identifying alternative food options in the local ecosystem is clearly a challenge. The Special Rapporteur underlines the need to continue to invest in research on the consequences of Arctic pollution, the relevance of ensuring access to information and the importance of developing a protocol to test for heavy metals in domestic foodstuffs, in addition to developing alternative dietary options. The Arctic Monitoring and Assessment Program has for many years been a source of information on pollution levels in Greenland and the Arctic.

59. Climate change has been found to potentially modulate the impact of exposure to toxic pollutants, but, owing to various uncertainties regarding the effects of climate change on health, it is not possible to make reliable risk and impact assessments, and a stricter application of the precautionary principle is required. Climate change, including increasing climate variability, may affect primary and secondary emissions of persistent pollutants in the Arctic region, potentially offsetting the efforts undertaken under the Stockholm Convention to reduce the emission of persistent organic pollutants, thereby increasing the risks relating to their harmful effects on human health.[38] Climate change is also increasing options for navigating around the island, as the frosting of some areas becomes infrequent. The increase in navigation brings with it other stressors; for example, ships discharging ballast water into the Arctic Sea may introduce invasive species that could outcompete resident species. Increased opportunities for navigation also expand fishing opportunities. The fishing industry is, in fact, a pillar of the economy of Greenland, and reports have been shared with the Special Rapporteur on the overfishing of some species, such as salmon[39] and Greenland halibut.[40]

60. Greater attention to the impact of pollution in the Arctic is needed urgently. The Special Rapporteur recognizes that Greenland suffers from the effects of global pollution and is of the view that it should therefore expand its involvement in the demand for global action to speedily improve the management of hazardous substances and wastes. Even if there are no major sources of mercury in Greenland, mercury contamination is a key source of concern regarding the diet of traditional communities. Therefore, the Government of Greenland should consider a decision to lift the reservation of application of the Minamata Convention on Mercury to Greenland.[41]

C. Military activities

61. The Government of Denmark has competence in matters of defence, but is to consult and cooperate closely with the Government of Greenland on foreign and security

[36] Louise K. Schæbel and others, “The influence of persistent organic pollutants in the traditional Inuit diet on markers of inflammation”, *PLOS ONE*, vol. 12, No. 5 (19 May 2017).

[37] Maria Wielsøe and others, “Serum levels of environmental pollutants is a risk factor for breast cancer in Inuit: a case control study”, *Environmental Health* (2017).

[38] United Nations Environment Programme and the Arctic Monitoring and Assessment Programme Expert Group, “Climate change and POPs: predicting the impacts”, report prepared for the Conference of the Parties to the Stockholm Convention, Geneva, 25–29 April 2011.

[39] See www.nasco.int/wgc_measures.html.

[40] World Wide Fund for Nature, “Much at stake in Greenland halibut overfishing”, 25 August 2017.

[41] Victoria Herrmann, “Making mercury history? Greenland chooses to opt out of historic UN Convention”, *High North News*, 28 August 2017.

affairs of particular importance to Greenland, in accordance with the 2003 Itilleq Declaration. Agreements signed between Denmark and the United States of America in 1941 and 1951 allowed the United States to build a number of bases and radar stations in Greenland. The establishment of Thule Airbase, in 1953, was particularly traumatic because authorities in Denmark forcibly relocated the inhabitants of the village of Uummannaq to other villages in the area. The case was the object of national litigation, and villagers were awarded financial compensation. The United States presence decreased significantly over the years, and successive agreements between Denmark and the United States have resulted in the return of military facilities, with the exception of Thule Airbase, to control by Denmark.

62. The lack of participation of the authorities in Greenland in past agreements adopted by the forces of Denmark and the United States and the protracted unwillingness of those authorities, until recently, to perform comprehensive clean-ups of sites following United States military activities and abandoned United States military sites have fuelled debates on the responsibility for such clean-ups and for the monitoring and safeguarding of corresponding landfills. The difficulty of clarifying the extent, location and type of waste and the resulting inability to provide meaningful risk assessments to communities living and hunting in the affected areas have fuelled a sense of resentment and frustration on the part of Greenlanders. The Government of Denmark informed the Special Rapporteur that it had financed various impact assessments.

63. In recent years, concern over hazardous wastes left behind by the United States military has increased in Greenland. In a 2016 report on the situation on the United States Camp Century base beneath the surface of the north-western Greenland Ice Sheet, it was estimated that tons of toxic waste, including polychlorinated biphenyls and radioactive material, could have been exposed owing to thawing ice resulting from climate change.[42] The base was decommissioned in 1967, following a study conducted on the feasibility of deploying ballistic missiles within the Ice Sheet. The Government of Denmark, in cooperation with the Government of Greenland, initiated several studies to assess the remaining waste at Camp Century, including a programme for long-term climate monitoring, a survey of the debris field and measurements of radioactivity in ice samples.

64. The Special Rapporteur was informed that the United States Government was of the view that the agreement with Denmark excluded it from any liability relating to the cleaning of debris remaining after military activity conducted in Greenland. Greenlanders, for their part, are exerting pressure on the authorities in Denmark to address the impact of activities conducted for years in their territory without their consent, control or participation. Nevertheless, interlocutors informed the Special Rapporteur that the United States had financed an arrangement with the Greenland Home Rule Government regarding the abandonment, demolition and clean-up of certain bases on the basis of agreements between the Governments of the United States and Denmark, including Greenland. The authorities in Denmark granted a mutually agreed financial contribution to the Home Rule Government for the environmental clean-up of Dundas when the area was given up by the United States at the request of the Home Rule Government.

65. Controversy marked the implementation of military activities, owing in particular to the difficulty of gaining access to information on the full nature of the operations implemented by United States forces. Concerns existed, for example, about the impact of contamination generated by the crash of a United States Air Force B-52 bomber loaded with nuclear weapons near Thule Airbase. Owing to a high level of confidentiality, a controversy emerged over the potential risk caused by an unaccounted-for unexploded device allegedly left in the area, but in a study by the authorities in Denmark,[43] that hypothesis was discarded. Workers involved in the clean-up operation claimed that long-term health problems resulted from their exposure to radiation and legally challenged the

[42] William Colgan and others, "The abandoned ice sheet base at Camp Century, Greenland, in a warming climate" *Geophysical Research Letters*, vol. 43, No. 15 (16 August 2016).

[43] Svend Aage Christensen, *The Marshal's Baton*, DIIS report 2009:18 (Copenhagen, Danish Institute for International Studies, 2009).

Government of Denmark for allegedly failing to monitor the health-related consequences of their exposure to hazardous substances. Joint studies conducted by the Danish health authorities and the Greenland Home Rule Government did not identify any specific health consequences.

66. In January 2018, the authorities in Denmark and Greenland signed an agreement to promote the clean-up of American military installations. The deal, which earmarked 180 million krone over six years for the clean-up, followed an agreement adopted in February 2017 for the monitoring and gauging of risks associated with Camp Century and the reported retraction of the covering ice cap. Regarding Camp Century, the Government of Greenland does not necessarily consider these studies and projects to be sufficient and reiterates that it does not assume legal responsibility for the detection, investigation or clean-up of pollution, including radioactivity, in the area.

67. The Special Rapporteur recognizes the efforts made to assess the impact of the military waste and the commitment of Denmark to supporting the clean-up. Full transparency is crucial in order to dissipate the tensions that have emerged over years of covert operations. Regardless of the ultimate attribution of responsibility to the forces of Denmark and the United States, States must ensure the disposal of contaminated war debris, unexploded ordnance and military equipment in a manner consistent with international standards (see also A/HRC/5/5). Nevertheless, Greenlanders have raised concerns at meetings regarding the continued use of the island in defence efforts, including as part of an anti-missile shield.

68. The Special Rapporteur was informed of concerns regarding the impact of debris left behind from rocket launches in the Arctic Sea. In 2017, Inuit in Greenland protested[44] the launch of satellites by the European Space Agency as the debris potentially containing significant quantities of unburned hydrazine fuel fell on an area of vital hunting sources.[45] Inuit in Greenland complained about not having been informed of the launches and noted the significant risks associated with those activities. In a recent study, attention was drawn to the fact that, since 2002, the Russian Federation had, on at least 10 occasions, dropped rocket stages fuelled with unsymmetrical dimethylhydrazine into the Barents Sea and the North Water Polynya without regard to the significant risks posed by those activities. It was noted that not all of the fuel on board is consumed during a launch and that residual fuel can pollute large areas. The health consequences of unsymmetrical dimethylhydrazine exposure for United States aerospace workers has been documented in scientific literature.[46] In another study, conducted in Kazakhstan, serious health consequences for children and adults were noted in areas where similar rockets were frequently used.[47] The Special Rapporteur fully concurs with calls to avoid using unsymmetrical dimethylhydrazine-fuelled rockets until their safety is fully demonstrated.

D. Mining initiatives

69. The extraction of minerals is regarded as one of the main potential sources of economic expansion in Greenland and viewed by some interlocutors as critical for full independence from Denmark. Nevertheless, significant concerns exist regarding the environmental and social impact of those activities. Investment in mineral-related activities has reportedly slowed in recent years owing to a general decrease in the price of commodities, making investment in remote areas less attractive.

[44] Inuit Circumpolar Council, “ICC Pikialasorsuaq Commission calls for postponement of Russian rocket launch”, press release, 5 October 2017.

[45] Tiff-Annie Kenny and Tad Lemieux, “Latest rocket launch renews concerns over Inuit food security”, The Conversation, 25 April 2018.

[46] Beate Ritz and others, “Chemical exposures of rocket-engine test-stand personnel and cancer mortality in a cohort of aerospace workers”, *Journal of Occupational and Environmental Medicine*, vol. 41, No. 10 (October 1999).

[47] United Nations Development Programme, *Environment and Development Nexus in Kazakhstan* (Almaty, LEM Printhouse, 2004).

70. Most mining projects are still in their embryonic stage. Special concerns exist, for example, regarding a mine for rare earth elements, zinc and uranium in Kvanefjeld, near Narsaq. Worldwide experience has illustrated that such mining projects are associated with a wide range of potential adverse human health and societal risks. In addition to posing risks to workers, the Kvanefjeld mine could potentially contaminate and otherwise disturb areas used by the local community, for example sheep farms. Depending on the dimensions of the projects considered, an influx of migrant or temporary workers may be required. Special measures must be taken to ensure oversight of working conditions and to promote their integration into local communities. The authorities' ability to ensure the future close monitoring of waste and tailings dumps might be another source of concern, considering, in particular, the accumulated challenges associated with managing waste on the island.

71. The Mineral Resources Act, 2009, is the framework legislation for all activities relating to mineral and hydrocarbon exploration and exploitation. The adoption of the legal and institutional framework governing the mineral resources area, such as mining activities, in Greenland was one of the significant consequences of the adoption of the Act on Greenland Self-Government in 2009.

72. The Mineral Resource Authority, which comprises the Mineral Licence and Safety Authority and the Environmental Agency for Mineral Resource Activities, is responsible for all matters relating to mineral resources. The Authority may grant exploration licences for 10 years, with the possibility of renewal for an additional 3 years at a time, and exploitation licences, once an economically feasible deposit has been determined through exploration, for 30 years. A licence for approval of a mineral activity can be granted only after an environmental impact assessment has been made or a social sustainability assessment has been conducted.

73. Over the years, authorities have adapted the procedures for environmental and social impact assessments with the aim of ensuring greater transparency and participation. Environmental licensing occurs through the Environmental Agency for Mineral Resource Activities, which operates under the Ministry of Nature and Environment. The Agency cooperates closely with the Danish Centre for Environment and Energy and the Greenland Institute of Natural Resources (Pinngortitaleriffik) to secure independent scientific advice. Detailed guidelines[48] were drawn up, then updated in 2015 with public consultation, to guide the process of preparing a social impact assessment and ensure meaningful participation. The processing of an application is expected to take from 4 to 12 months, during which at least two public consultations are required. Information on the entire process is to be made available online. Guidelines have also been drawn up for preparing an environmental impact assessment.

74. The authorities have underscored their commitment to ensuring the prior and informed consent of those affected by mining projects, and the evolution of the norms regulating licensing seems to reflect that position. Nevertheless, challenges remain regarding ensuring wide access to information and meaningful participation. The Special Rapporteur was informed that the time allotted for pre-consultations was unrealistic, considering the complexity of ensuring the meaningful participation of communities living in remote locations. Difficulties also reportedly exist in the translation into Greenlandic of documents containing complex technical information and in informing all communities concerned. Recent assessments have also revealed issues such as a lack of systematic evaluation of the former and present extractive projects and the challenges of creating spaces for participation in an atmosphere where people feel comfortable talking about issues that may be sensitive to them, because mining projects can often divide communities.[49] In another assessment, it was indicated that public participation in the decision-making process is still impaired by a lack of public access to the draft

[48] Greenland, Ministry of Industry, Labour and Trade, *Social Impact Assessment (SIA): Guidelines on the process and preparation of the SIA report for mineral projects* (Nuuk, Greenland, 2016).

[49] Anne Merrild Hansen and Rachael Lorna Johnstone, "Improving public participation in Greenland extractive industries", *Current Developments in Arctic Law*, vol. 5 (2017).

environmental impact assessment.[50] A comparison of two different mining licensing processes has revealed that capacity-related concerns in particular affect projects of greater scale.

E. Challenges of waste management

75. The overall planning of waste management throughout Greenland is a responsibility of the Government of Greenland, while municipalities can plan and implement local waste systems. The main norms for waste management are the Parliament of Greenland Act No. 9 of 22 November 2011 on the protection of the environment and the Greenland Home Rule Proclamations No. 28 of 1993 on the disposal of waste and 29 of 1993 on oil and chemical waste.

76. Greenland faces major and unique environmental challenges in the management of waste. It is a large land mass with disparate communities and a lack of connecting roads, which means that much of its waste is transported exclusively by boat or airplane. A large volume of plastic waste is generated by the packaging of imported goods. In recent evaluations,[51] it was noted that most of the waste in Greenland is disposed of in open dumps or burned in simple, small-scale incinerators, which release toxic chemicals, such as dioxins, that accumulate in ice, food and people, resulting in a call for improvement. Concerns also exist regarding waste management and the rights to water and sanitation. Bucket toilets and the discharge of wastewater into the ground or open sewers are problematic issues with potential consequences for the environment and health.

77. Investments were recently made to improve waste management in more populated areas. The Special Rapporteur was informed of the efforts of the local authorities in Ilulissat and Nuuk, who recognized the need to tackle the backlog from previous years and abandon the practice of using landfills and open-air incineration. Greenland aims to expand economic activity by investing in the tourism and mining sectors; in planning such efforts, consideration must be given to the urgent need to improve waste management.

IV. Conclusions and recommendations

A. Denmark

78. **The rich experience of Denmark in promoting the right to the highest attainable standard of health by reducing toxic exposures can serve as a valuable resource for other countries. Denmark has advanced research, public awareness and participation simultaneously to promote the development of laws and policies to improve health by enhancing protection from toxic exposures. Noting increasing deregulatory pressures at home and abroad, which are causing or threatening a departure from established protections, the Special Rapporteur believes that the leadership of Denmark is needed now more than ever to protect people from toxic chemicals and urges the Government to redouble its efforts in that regard.**

79. **A human rights-based approach to protection from toxic exposure requires particular attention to the exposure of sensitive, at-risk and vulnerable groups and deficiencies in the protection of the rights of such groups. The efforts of Denmark to protect children from toxic exposures, in particular to chemicals that interfere with children's healthy development, are commendable.**

[50] Maria Ackrén, "Public consultation processes in Greenland regarding the mining industry", *Arctic Review on Law and Politics*, vol. 7, No. 1 (2016).

[51] Rasmus Eisted and Thomas H. Christensen, "Environmental assessment of waste management in Greenland: current practice and potential future developments", *Waste Management and Research*, vol. 31, No. 5 (May 2013).

80. **Nevertheless, challenges remain, in particular regarding the impact of Danish businesses in foreign territories. Those extraterritorial concerns are evident in the shipbreaking industry and in the export of hazardous pesticides banned by Denmark to countries with lower standards of protection for workers and communities at risk. The Government has paid insufficient attention to the toxic impact of Danish businesses on the rights of people outside of Denmark. The Special Rapporteur was struck by the lack of attention on the part of the national human rights institute and equitable trade initiatives to the extraterritorial impacts of Danish businesses on people living outside of Denmark with respect to toxic exposures. This is particularly striking against a background of achievement in reducing exposures to toxics both within Denmark and in Europe.**

81. **In that regard, the Special Rapporteur makes the following recommendations:**

(a) **Denmark should continue its efforts to prevent exposure to hazardous substances and increase its efforts to protect the right to health and protect others from toxic exposures by doing the following:**

- **Explicitly linking its efforts to develop a non-toxic environment to the realization of all human rights threatened by toxic exposures**
- **Strengthening internal collaboration among experts on exposure to toxic substances and human rights experts, including reporting under United Nations human rights instruments**
- **Developing a stronger, more comprehensive and ambitious global regime to minimize exposure to toxic substances and prevent the abuse of human rights in lower-income countries. Such a regime should redefine substances of global concern to include those used in international supply chains; subject chemicals of global concern to legally binding requirements on the basis of the human rights obligations of States; include a periodic review for monitoring States' performance with outputs of the process sent to the Committee on the Rights of the Child regarding the realization of article 24; create a non-binding policy framework through which to raise and discuss truly emerging issues; and require States to compel businesses to perform human rights due diligence regarding the impacts of toxic substances throughout the life cycle of their product and supply chains**

(b) **Denmark should ensure that businesses in its territory or under its jurisdiction respect human rights by:**

- **Requiring them to conduct human rights-related due diligence to identify, monitor, assess and address any abuses of human rights relating to toxic substances. The requirement should cover impacts that such businesses cause, contribute to or are linked to, in Denmark or abroad, in relation to their national and international operations and throughout their supply chains**
- **Increasing its cooperation with foreign Governments in areas where there are commercial relations with Danish businesses, in particular shipbreaking and agriculture**

(c) **Denmark should ensure that its laws provide for jurisdiction over foreign cases of impacts due to hazardous substances and should assert jurisdiction over corporate abuse of human rights abroad due to toxic exposures, including criminal sanctions, where appropriate;**

(d) **Denmark should consider ratifying the Optional Protocol to the International Covenant on Economic, Social and Cultural Rights and the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families;**

(e) **A stronger, comprehensive global regime regarding toxic chemicals is required to protect those most at risk of exposure to substances that pose risks to life and health, including workers, low-income communities and children, among others, and to prevent businesses from exploiting lower standards of protection and weaker governance structures in certain countries.**

B. Greenland

82. **As Greenland has increased its governance-related autonomy, concerns about the management of wastes and hazardous substances have emerged. Greenland faces significant challenges in establishing a reliable system of pollution control and waste management; the small population distributed over a vast territory and the Arctic climate pose significant challenges for authorities. The Special Rapporteur is pleased to note the commitment of the authorities in Greenland to paying attention to human rights obligations while promoting mining opportunities. Considering the significant risks posed by some activities, greater capacity among environmental officials might be needed to ensure that standards are implemented. Special concerns exist regarding high levels of contamination by a wide range of substances in the traditional food sources of communities in Greenland. The substances include synthetic chemicals, heavy metals and radionuclides that migrate northward to the Arctic ecosystem, accumulating in foods in the Inuit diet and contaminating water and ice. The Special Rapporteur underlines the injustice done to communities in Greenland and the Arctic through the contamination of the resources on which they depend by pollutants from foreign sources and calls for stronger international measures to protect their rights.**

83. **Concerns about the clean-up of waste accumulated over years of military activities can be dispelled only with the full support of all parties involved in those activities. Transparency is vital to building the trust needed to conclude that process effectively. Greenland is also particularly vulnerable to pollution originating in other parts of the world and therefore must have its voice heard by the international community when solutions to major environmental concerns are devised.**

84. **In that regard, the Special Rapporteur wishes to make the following recommendations to the Greenland self-government and to Denmark:**

(a) **The self-government should actively participate in global debates on the control of pollution. It is encouraged to strengthen interlinkages between climate change and conventions relating to toxic chemicals in order to enhance efforts to reduce exposure to toxics. Greenland should consider requesting Denmark to apply all relevant conventions, including the Minamata Convention and the Aarhus Convention;**

(b) **The self-government should ensure that information on pollution and adequate forms of waste management is made available and accessible to local communities, including potential options for reducing exposure to toxic substances;**

(c) **Denmark must identify and remove all military waste left in Greenland that is unwanted by the people of Greenland. The United States is strongly encouraged to engage and assist in that effort. Denmark and Greenland should significantly enhance the participation of the people of Greenland in decisions regarding the presence of foreign military forces in Greenland;**

(d) **Regarding participation and consultation relating to mining projects, the self-government is encouraged to reconsider the amount of time allotted to pre-consultations to allow the sufficient mobilization of communities living in remote locations. Additional resources should be directed towards the translation and wider dissemination of documents. The self-government should also address concerns regarding a lack of systematic evaluations of former and present extractive projects;**

(e) **While considering the accumulated challenges faced in managing waste on the island, the self-government is encouraged to upscale the monitoring of waste and tailings dumps and to ensure oversight of working conditions;**

(f) **The self-government should ensure that the promotion of economic expansion is constantly accompanied by efforts to improve the management of chemicals and waste systems. In that connection, the self-government should take concrete steps towards a circular economy, including by abandoning open-air landfills and the incineration of waste;**

(g) **Denmark should ensure that all countries neighbouring Greenland avoid launching unsymmetrical dimethylhydrazine-fuelled rockets that land near the territory of Greenland until their safety is fully demonstrated and assess the potential impact of pollution from previous launches.**