



人权理事会

第五十一届会议

2022 年 9 月 12 日至 10 月 7 日

议程项目 3

促进和保护所有人权——公民权利、政治权利、
经济、社会及文化权利，包括发展权

访问毛里求斯

危险物质及废物的无害环境管理和处置对人权的影响问题特别报告员 马科斯·奥雷利亚纳的报告*

概要

危险物质及废物的无害环境管理和处置对人权的影响问题特别报告员马科斯·奥雷利亚纳于 2021 年 10 月 25 日至 29 日访问了毛里求斯。本报告载有他的调查结果以及向毛里求斯政府提出的建议。

在本报告中，特别报告员重点关注和分析了与其任务相关的以下问题：若潮号触礁漏油事故的影响，特别从环境和人权角度加以分析；小岛屿国家在危险物质及废物的无害管理方面的挑战和最佳做法，包括与马尔希科斯填埋场有关的挑战和最佳做法；以及农药对健康和环境的影响。

* 本报告概要以所有正式语文分发。报告正文附于概要之后，仅以提交语文分发。



Annex

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 visit to Mauritius

I. Introduction

1. Pursuant to Human Rights Council resolution 45/17, the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes, Marcos Orellana, visited Mauritius from 25 to 29 October 2021 at the invitation of the Government. During the visit, the Special Rapporteur aimed to assess the efforts made by the Government to prevent and address the adverse impacts of toxics on human rights.
2. The Special Rapporteur expresses his sincere gratitude to the Government of Mauritius for the invitation to conduct a country visit, for its willingness to open itself to scrutiny and for its excellent cooperation and efforts to ensure that he could make the most of the visit. The Special Rapporteur is grateful for the frank and constructive discussions that were enabled through the openness of the Government and its officials.
3. The Special Rapporteur had the privilege of having discussions with the Minister for Foreign Affairs, Regional Integration and International Trade; the Minister for Environment, Solid Waste Management and Climate Change; and the Senior Chief Executive of the Human Rights Division of the Ministry of Foreign Affairs.
4. The Special Rapporteur also had the honour of speaking with officials from the Solid Waste Management Division and the Climate Change Division of the Ministry of Environment, Solid Waste Management and Climate Change; the Ministry of Energy and Public Utilities; the Ministry of Labour, Human Resource Development and Training; the Dangerous Chemical Control Board; the Ministry of Agro Industry and Food Security; and the Ministry of Health and Wellness.
5. The Special Rapporteur also had the privilege of talking to parliamentarians, the Director of the Radiation Safety and Nuclear Security Authority, and the Commander of the National Coast Guard.
6. The Special Rapporteur is grateful for the rich exchanges with representatives of diplomatic missions, including the Ambassador of Japan and the Ambassador of France, as well as with staff of United Nations agencies, members of the National Human Rights Commission, representatives of diverse civil society organizations, academics and private companies.
7. The Special Rapporteur appreciated the opportunity to visit the area where heavy fuel oil was spilled from the MV *Wakashio* and to meet government officials and civil society stakeholders. He also welcomed the opportunity to visit the Mare Chicose landfill and its employees, the Mauritius Ports Authority and its representatives, and the interim storage facility for hazardous wastes at La Chaumière and its employees.
8. The Special Rapporteur thanks all representatives of civil society organizations and members of academia with whom he met during the visit and expresses his appreciation for their testimonies and insights.
9. The Special Rapporteur also thanks everyone who helped in organizing the visit, with special thanks to the United Nations country team in Mauritius and the Office of the United Nations High Commissioner for Human Rights.
10. The Special Rapporteur looks forward to continued engagement and collaboration in the years ahead with the Government of Mauritius. The Special Rapporteur will remain

available to the Government and civil society stakeholders for any technical assistance that he might be able to provide in his capacity as Special Rapporteur.

II. General context

11. This was the Special Rapporteur's first visit to any State since the start of the coronavirus disease (COVID-19) pandemic and the second ever visit by a Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes to a small island developing State.

12. Mauritius is a small island developing State and its economy is driven in large part by the manufacturing, tourism, agriculture and health sectors.¹ While the Government's measures during the COVID-19 pandemic allowed the country to record only 315 cases and 10 deaths from COVID-19 in 2020, the measures had a high economic cost, as the country's gross domestic product contracted by 15 per cent.² While Mauritius had become a high-income country in 2020, it slipped back into upper-middle-income status in 2021 due to the impact of the pandemic.³

13. The challenges Mauritius faces in ensuring proper management of toxic substances and waste reflect those faced by other small island developing States, namely, effective waste management,⁴ limited land availability for waste management activities, increased seasonal waste linked to tourism, climate change vulnerability and a lack of economies of scale.⁵

14. As the economies of small island developing States develop and move towards a cash based, consumer goods society, the volumes and complexity of waste products increase.⁶ Unlike the mainly organic waste of the past, much of the modern waste stream may take many years to break down, and some components of the waste, such as plastics containing a myriad of toxic additives, may be harmful to human health and the environment, posing new challenges to small island developing States.⁷

III. Implications of toxics for the human rights obligations of Mauritius

15. Mauritius has ratified or acceded to seven United Nations human rights treaties⁸ and therefore has numerous obligations in relation to the impacts on human rights of hazardous substances and wastes. Under these treaties, Mauritius has the obligation to protect, respect and fulfil the human rights to life, health, personal integrity, safe food and water, adequate housing, safe and healthy working conditions, and a clean, healthy and sustainable environment, among others. Mauritius has obligations regarding the rights to access to information, participation, and access to justice and remedies.

¹ Global Environment Facility, "Implementing Sustainable Low and Non-Chemical Development in SIDS (Islands)", programme framework document (2019).

² African Development Bank Group, "Mauritius economic outlook". Available at www.afdb.org/en/countries/southern-africa/mauritius/mauritius-economic-outlook.

³ World Bank, "The World Bank in Mauritius: overview". Available at www.worldbank.org/en/country/mauritius/overview#1.

⁴ The challenges to effective waste management in small island developing States include the remoteness of the islands and their vulnerability to climate change, which often makes the handling and transport of waste expensive and difficult, particularly hazardous waste. See United Nations Environment Programme, *Small Island Developing States Waste Management Outlook* (Nairobi, 2019).

⁵ United Nations Environment Programme, *Small Island Developing States Waste Management Outlook* (Nairobi, 2019).

⁶ South Pacific Regional Environment Programme and United Nations Environment Programme, *Guidelines for Municipal Solid Waste Management Planning in Small Islands Developing States in the Pacific Region* (South Pacific Regional Environment Programme, 1999).

⁷ Ibid.

⁸ For a list of the treaties, see https://tbinternet.ohchr.org/_layouts/15/TreatyBodyExternal/Treaty.aspx?CountryID=111&Lang=EN.

16. Mauritius is also a party to the key multilateral environmental agreements in the chemicals and waste cluster.⁹ Together, these rights and obligations create a duty for Mauritius to prevent exposure to toxic and hazardous substances.

IV. MV *Wakashio* disaster

A. Background

17. On 25 July 2020, the MV *Wakashio* bulk carrier vessel ran aground on the reef off Pointe d'Esny, near the town of Mahebourg, while making its way from China to Brazil. The vessel was not en route to any nearby port and was not traveling close to any accepted sea lanes. The captain of the ship later declared in court that he had navigated close to shore to allow the crew to pick up a cellular signal.

18. The location where the vessel ran aground is near ecologically sensitive and important areas, including the Pointe d'Esny wetlands, the Île aux Aigrettes nature reserve, the Blue Bay marine park and the Mahebourg fishing reserves. In fact, the Blue Bay marine park and Pointe d'Esny are protected under the Convention on Wetlands of International Importance Especially as Waterfowl Habitat.

19. The MV *Wakashio* was owned by the Japanese company Nagashiki Shipping Co., Ltd. and was chartered by the Japanese company Mitsui O.S.K. Lines. The vessel was flying the flag of Panama. It contained 3,894 tonnes of low-sulphur fuel oil, 207 metric tons of marine gas oil and 90 metric tons of lubricant oil.

20. By 6 August 2020, the continuous stresses due to high waves had weakened the structure of the vessel and eventually caused the structural failure of the vessel's fuel tank. Over 1,000 tonnes of fuel oil leaked along a stretch of more than 27 km² and contaminated the lagoon and coastline. The spill led to the closure of lagoons and beaches and the halting of fishing between Le Bouchon and Trou d'Eau Douce, affecting the coastal communities dependent on fishing and tourism.

21. The low-sulphur fuel oil on board the MV *Wakashio* was a new type of fuel that had started to be used in 2020. The International Maritime Organization had mandated, starting in 2020, limits on sulphur in fuel oil used on board ships operating outside designated emission control areas to reduce air pollution¹⁰ and there was no information on how this fuel would behave if spilled into the sea. The Special Rapporteur takes note of the difficulties in the cleaning operations to recover the fuel oil due to its low viscosity and tendency to remain liquid.

B. Oil spill response

22. On 25 July 2020, the day the vessel ran aground, the National Oil Spill Contingency Plan was activated. On 6 August, an oil spill was announced. On 7 August, the Government declared a state of environmental emergency; access to the area was restricted and the official cleaning operations started. Grassroots movements of local community groups, fishers and residents were the first ones to respond on 6 August, the day of the spill itself. Fearing the

⁹ Mauritius is a party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the Stockholm Convention on Persistent Organic Pollutants and the Minamata Convention on Mercury.

¹⁰ Known as "IMO 2020", the rule limits the sulphur in the fuel oil used on board ships operating outside designated emission control areas to 0.50 per cent m/m (mass by mass), which is a significant reduction from the previous limit of 3.5 per cent. Within specific designated emission control areas, the limits were already stricter (0.10 per cent). This new limit was made compulsory following an amendment to annex VI to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto. See International Maritime Organization, "In focus: IMO 2020 – cutting sulphur oxide". Available at www.imo.org/en/MediaCentre/HotTopics/Pages/Sulphur-2020.aspx.

negative impact of the fuel on their livelihoods and beaches, community members started cleaning up the fuel and preparing artisanal booms. On 9 August, a technical coordination committee was set up by the Government. By 12 August, more than 3,000 tonnes of fuel had been pumped out from the interior of the vessel. On 15 August, the vessel broke into two while it still held several tonnes of fuel on board.

23. The clean-up operations involved the assistance of thousands of members of local communities, including volunteers, as well as members of civil society organizations. Among other things, these groups built and deployed between 25 and 50 km of artisanal booms on the water for the effective protection of the mangrove and shore, and initiated programmes to save corals affected directly or indirectly by the spill. The cleaning was monitored by the Ministry of Environment, Solid Waste Management and Climate Change.

24. The cleaning operations were completed in January 2021 by the companies Polyeco S.A. and Le Floch Depollution. In total, in the aftermath of the MV *Wakashio* disaster, about 5,600 tonnes of wastes was collected. In January 2022, the removal of the rest of the shipwreck and all associated debris off Pointe d'Esny was completed.

25. Considering the capacity of a small island State, the Special Rapporteur welcomes the initiative of the Government to safely store the wastes and then to export them to a licensed destination in Greece, in accordance with the procedures set out in the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal.

26. The National Oil Spill Contingency Plan was updated following the MV *Wakashio* disaster, building on the lessons learned. The Plan was enhanced to enable quicker decision-making and more efficient actions in the advent of a hazardous spill. The Plan acknowledges the participation of civil society organizations and provides for their involvement in future oil spill response.

27. A great number of stakeholders participated in the cleaning operations: villagers and fishers from the area, volunteers from across the country, civil society organizations, government officials, the international community (Australia, Bangladesh, China, France, Greece, Japan, India, the United Kingdom of Great Britain and Northern Ireland and the United States of America), the United Nations and the private companies Polyeco S.A. and Le Floch Depollution.

28. The Resident Coordinator Office for Mauritius and Seychelles, together with the Office for the Coordination of Humanitarian Affairs, initiated a multi-agency response that also included the United Nations Environment Programme and the International Maritime Organization, in order to provide support to local actors to contain the oil spill.

29. The Special Rapporteur was informed that authorities did not welcome the participation of civil society or the local private sector at all times, who repeatedly offered help, which led to tensions and massive street demonstrations. The Special Rapporteur also learned that there were allegations of a lack of coordination with civil society and a lack of information on issues such as the specific composition of the fuel and the safety of the waters.

30. The already complicated cleaning operation had to bear the additional challenges imposed as a result of the COVID-19 pandemic.

C. Impacts

1. Social

31. According to one report, the spill sites could be showing signs of developing into poverty traps.¹¹ Despite government compensation schemes, the oil spill and the pandemic led to a heavy financial burden, health impacts and psychological trauma, among other impacts.

¹¹ A. de Rosnay and others, *Social Impact Assessment of the Compounding Impacts of COVID-19 and the Wakashio Oil Spill in Mauritius: Preliminary Findings Report* (Dynamia, 2021).

32. Among those disproportionately affected were women and unregistered fishers.¹² According to the report, the impact of COVID-19 and the oil spill could potentially exacerbate inequalities between men and women. Unregistered fishers were not entitled to support packages, and most of those unregistered are women and gleaners. Many fishing families where the women carried out subsistence and commercial fishing had to address a shortage of dual incomes and food availability.¹³

33. Small-scale fisheries were also particularly affected by the lockdown and the oil spill and reported economic difficulties despite the compensations received. Restaurants and tourism operators, both along the south-east coast and inland, among other businesses, were also negatively affected by the pandemic and the oil spill, and not all received assistance from the authorities.

2. Health

34. According to one study, health-care workers reported seeing patients with a range of acute symptoms thought to be associated with exposure to oil, such as difficulty breathing, burning eyes from the fumes, dizziness and nausea.¹⁴ Another study reported that respondents who were most involved in the clean-up operations presented similar symptoms, such as shortness of breath, cough, sore throat, headaches, nausea and skin irritation, and the Special Rapporteur received information asserting the same. Short-term respiratory impacts and potential long-term neurological impacts from exposure to heavy fuel oil have also been referred to in research.¹⁵

35. Mental health impacts have also been reported, not only as a consequence of COVID-19, but also following the oil spill, with impacts such as feelings of anxiety and helplessness, depression, and feelings of betrayal and anger towards decision makers.¹⁶

36. The initial efforts to contain the oil were carried out without protective equipment, with some people fully immersed in oil, according to testimonies. In the days that followed, the Government provided protective equipment (such as boots, masks, overalls and gloves) and training on how to proceed with the cleaning. However, concerns were raised about the quality and quantity of the protective equipment. This caused some fishers to feel unsafe working in oil spill sites and resulted in health complications from oil spill exposure.

37. Schools in affected areas were temporarily closed but reopened on 12 August 2020. However, complaints related to nuisance from odours were received from three schools. Tests for volatile organic compounds were performed by the National Environmental Laboratory and the results came back negative. According to information received from the Government, the Ministry of Environment, Solid Waste Management and Climate Change and the Ministry of Health and Wellness conducted talks at those schools to reassure those affected that the ambient air quality complied with norms.

38. In January 2021, the Government released the final public health risk assessment of the MV *Wakashio* oil spill, in collaboration with the World Health Organization, and the results suggested a negligible increased risk to public health. Nevertheless, the report included recommendations for the short term to further explore the risk of arsenic exposure through the ingestion of marine species and to expand the integrated monitoring strategy. In the long term, the report calls for the National Environmental Laboratory to be equipped and staffed to analyse metals and organic compounds in water, marine species and sediments, and to develop capacity at the country or regional level to provide broad assistance in the

¹² According to testimonies received, it is estimated that there is a considerable number of unregistered fishers, which could be due to the lack of trust in authorities and the long wait times to obtain a licence.

¹³ Information provided to the Special Rapporteur by Eco-Sud on a summary of community meetings that took place at five sites from 25 August to 7 September 2020.

¹⁴ Sima Barmania, "Questions over health response to Mauritius oil spill", *The Lancet*, vol. 396, No. 10251 (August 2020).

¹⁵ A. de Rosnay and others, *Social Impact Assessment of the Compounding Impacts of COVID-19 and the Wakashio Oil Spill in Mauritius*.

¹⁶ Ibid.

context of the effects of chemicals on human health. The Government has also indicated that it would continue to export hazardous waste for treatment in licensed facilities.

3. Ecosystems

39. An estimated 30 km of shoreline was heavily affected by the oil spill, with the presence of contaminated algae identified in multiple locations, including Deux Frères, Bambous Virieux, Anse Jonchée and Providence, while mangroves affected by oil were identified in Bois des Amourettes, Rivière des Créoles, Anse Fauverelle, Deux Frères, Pointe du Diable and other places.

40. According to information provided by the Government, the booming it had placed in Blue Bay marine park was intended to protect the area from the oil spill; however, it ended up causing physical damage. The Ministry of the Blue Economy, Marine Resources, Fisheries and Shipping is implementing a coral restoration project in the damaged area.

41. The ecosystems that were most effected by the oil spill, however, were mangroves. Mangroves are legally protected in Mauritius¹⁷ and known to prevent erosion and decrease the velocity of the waves arriving on the coastline, as well as to act as nursery habitats for crabs, prawns and small fish of commercial importance.¹⁸

42. A seafood monitoring programme was initiated by the Government after the spill. Fish samples were collected in and outside the affected zones and submitted for analysis of total hydrocarbons, polycyclic aromatic hydrocarbons and heavy metals. A communiqué was issued on 8 September 2020 stating that fish and fish products from Mahebourg up to Trou d'Eau Douce should not be consumed or commercialized. The ban on off-lagoon fishing was eventually lifted in mid-December 2020, and the ban on in-lagoon fishing was lifted in some of the affected regions in March 2021 and in the area from Pointe Canon to Vieux Grand Port in September 2021.

D. Access to remedy

43. In total, 592 fishers and fishmongers involved in the cleaning received a payment from the contractor and compensation from the Government for their involvement in the cleaning and for the loss of livelihoods. As of mid-July 2021, the Government had paid a solidarity grant to registered fishers (628), applicant fishers (197) and fishmongers (174) equivalent to the minimum monthly wage of \$230 for the period August 2020 to March 2021. An additional claim of approximately \$3,000 per fisher and \$3,150 per fishmonger was submitted to the insurer for economic loss, together with claims from skippers, pleasure craft operators, hotels and small businesses. As at 10 May 2022, the total compensation paid by Japan P & I Club, insurers of the MV *Wakashio*, amounted to MUR 196,372,606 (approximately \$4.5 million).

44. The Special Rapporteur received testimonies about tensions among the affected population about the distribution of compensations. Concerns included the fact that compensations arrived late and were low, the lack of information about the criteria to grant compensation, inequalities in the amount of assistance, and the fact that some villagers in areas affected by the spill had not been hired for the cleaning operations while individuals from other areas of the country had been.

45. Mauritius originally demanded \$34 million from the Japanese company operating the ship, but by January 2021 the company had pledged only \$9 million and a total of \$25,000 to be paid to 50 fishers, which amounts to \$500 each.¹⁹ In December 2021, the Minister for the Blue Economy, Marine Resources, Fisheries and Shipping announced that the ship's insurers had agreed to compensate about 1,000 fishers with about \$2,600 each.²⁰ The Special

¹⁷ Fisheries and Marine Resources Act of 2007, art. 69.

¹⁸ F. Baguette and others, *Interim Report on Mangrove Surveys Conducted along the South-East Coast of Mauritius Following the MV Wakashio Oil Spill* (Reef Conservation, 2021).

¹⁹ Africa News, "Japan ship operator starts compensation for fishermen over oil spill", 26 January 2021.

²⁰ Yasmine Mohabuth, "Mauritius oil spill: MV *Wakashio* ship captain sentenced", BBC News, 27 December 2021.

Rapporteur is concerned about information received on efforts of the insurance company to limit the compensation offered.

46. The captain and the first officer of the MV *Wakashio* were sentenced to 20 months in prison each at the end of 2021.²¹

E. Judicial investigation

47. On 18 September 2020, a court of investigation was appointed by the Ministry of the Blue Economy, Marine Resources, Fisheries and Shipping to, among other things, investigate and report on the grounding and breach of the MV *Wakashio*. Its terms of reference include determining the cause, scale and extent of the damage to the marine and coastal environment and marine life; whether there was proper management and supervision of the salvage operation and the planned sinking of the wreck; and the effectiveness of the overall preparedness and response of the relevant authorities.²² The work of the court of investigation is ongoing.

V. Solid and hazardous wastes

A. Solid waste legislation

48. At the time of the drafting of the present report, there was no dedicated legislation on solid waste management in Mauritius. The Government indicated that, with the assistance of the French Development Agency and the United Nations Development Programme (UNDP), it was preparing and would hold a workshop on an integrated solid waste management bill on both solid and hazardous wastes with a focus on a transition to a circular economy.

B. Waste management

49. The Special Rapporteur is concerned by the low percentage of recycling in the country. According to figures received, only 3 to 4 per cent of waste is recycled and the remainder ends up in the Mare Chicose landfill. This volume of plastic waste unnecessarily increases the pressure on the already stressed landfill, as much as it ostensibly reveals the lack of a proper waste management framework. The Government cited challenges such as the lack of critical mass, high collection costs, the unavailability of clean and sorted waste, high exportation costs and the absence of source segregation, which makes recycling expensive and difficult. However, the Government indicated that, with the implementation of recommendations of the new solid waste management strategy that is under development, it expects about 70 per cent of waste to be diverted from landfills by 2030. The strategy is focused on source segregation of municipal wastes and construction of composting plants and sorting units on a public-private partnership basis.

50. In this regard, information received indicates that currently waste is still simply burned in rural areas. This is highly concerning, given the hazardous substances released into the air out of the combustion of plastics, which contain a myriad of toxic additives that are harmful to human health and the environment.

51. The Special Rapporteur is also concerned that, since 2018, no composting has been carried out, which has exacerbated capacity constraints in the Mare Chicose landfill.²³ Previously, between 2011 and 2017, over 190,000 tonnes of solid waste were composted,

²¹ Ibid.

²² General notice No. 1290 of 2020: notice under section 10 (2) of the Merchant Shipping Act of 2007. Available at <https://gazettes.africa/archive/mu/2020/mu-government-gazette-dated-2020-09-18-no-117.pdf>.

²³ Statistics Mauritius, *Digest of Environment Statistics 2020*, table 72. Available at https://statsmauritius.govmu.org/Pages/Statistics/By_Subject/Environment/SB_Environment.aspx.

averaging just over 27,000 tonnes per year.²⁴ Furthermore, the State's tourism sector and its related jobs, which are extremely important to the economy of Mauritius, produces massive waste volumes (particularly plastics) during peak tourism season, which require appropriate management.

52. The Solid Waste Management Division is working on a strategy and action plan that will recommend, in the short and medium terms, the transition from a linear system of waste management to a circular economy, focusing on source segregation of waste, the setting up of regional compost plants for the composting of green and kitchen waste, and the sorting and recycling of dry waste. Regarding long-term options, the Division envisions waste incineration. At the time of the drafting of the present report, the Ministry of Environment, Solid Waste Management and Climate Change was working on bidding documents for the construction and operation of the proposed regional composting plants and sorting units.

53. The Special Rapporteur welcomes the intention of Mauritius of becoming a plastic free country and in particular the ban on certain single-use plastics,²⁵ including plastic bags,²⁶ which entered into force in 2021. He welcomes the information about a plastic management division being created under the Ministry of Environment, Solid Waste Management and Climate Change to enhance the recycling and management of plastic, and a roadmap being prepared for plastic waste management. The Special Rapporteur notes that more than 1,300 tonnes of polyethylene terephthalate bottles were exported for recycling in 2020. The Ministry is also working on new regulations for recycling beverage containers, including aluminium cans. The Special Rapporteur welcomes these measures and urges the Government to establish a comprehensive strategy towards a circular economy, including measures such as incentives for the collection and recycling of plastics, and extended producer and importer responsibility.²⁷

C. Civic amenity centres

54. Since 2019, the Solid Waste Management Division has planned and subsequently constructed civic amenity centres to enable the disposal of selected sorted wastes (e.g. wood, scrap metals, plastics, paper, cardboard, used tires, electrical and electronic waste (e-waste), used oil and fluorescent tubes). This waste is then collected by recyclers free of charge. Three centres have been constructed and authorities expect that about 1,500 tonnes of waste will be diverted from the landfill by the end of the year. Two other centres are expected to be constructed by 2023.

D. Mare Chicose landfill

55. Since the start of its operation in 1997, the Mare Chicose landfill, which is the sole engineered sanitary landfill for containment of waste in Mauritius, has received over 8 million tonnes of solid waste.²⁸ The landfill comprises over 46 ha and is equipped with a double liner system and efficient leachate and landfill gas collection systems.²⁹

²⁴ Ibid.

²⁵ Environment Protection (Control of Single Use Plastic Products) Regulations of 2020. The Regulations came into force in January 2021 but offer flexible moratorium periods to find alternatives and use up existing stocks.

²⁶ Environment Protection (Banning of Plastic Bags) Regulations of 2020. The Regulations came into operation in March 2021. The aim is to reduce the amount of plastic waste being generated. However, some plastic bags are still exempt.

²⁷ The Government proposes the extended producer responsibility mechanism on beverage containers in order to increase the recycling rates of polyethylene terephthalate bottles. Under this mechanism, a manufacturer's accountability for a particular product extends to the post-consumer stage of the product, including take-back, reuse or recycling, and final processing.

²⁸ UNDP Mauritius, "Brief on environmentally sound management and disposal of hazardous substances and wastes" (2021).

²⁹ Ibid.

56. In the visit to the Mare Chicose landfill, the Special Rapporteur was pleased to see that the engineering designs and solutions had been carried out with professionalism. The landfill is fenced and secured and there are no people scavenging there, which, however, does not seem to be the case in certain transfer stations. In addition, the sanitary landfill appears to offer good treatment for water protection: it transforms methane gas into electricity and it uses an anaerobic system, which reduces the possibility of fires and explosions.

57. In 2020, 510,000 tonnes of solid waste was generated, with an annual increase of 2 per cent over the previous 10 years, according to information provided by UNDP. Solid wastes generated in Mauritius generally comprise mainly organic wastes – food wastes and yard wastes (50 per cent) – followed by recyclables (45 per cent), but most solid wastes are currently landfilled. A total of 14.5 per cent of the waste disposed at the Mare Chicose landfill in 2020 was plastic wastes. The Government has indicated that the Solid Waste Management Division has been working with the Ministry of Housing and Land Use Planning since 2016 to identify suitable plots of land for the development of one or more landfills. However, no appropriate plot of State land has yet been identified. To address the capacity issues of the landfill and increasing waste quantities, procurement procedures were in progress to increase the landfill capacity through the construction of a perimeter wall. The fact that this solution is now needed reflects an unconcerned attitude of authorities to the grave problem of wastes, as this problem should have been anticipated more than a decade earlier, reflecting the lack of a comprehensive strategy.

58. The Special Rapporteur is also concerned by the fact that a significant amount of landfill leachate from the landfill is carried by truck to the north of the country. These waters, which contain organic and inorganic pollutants, are currently being treated in a sewage water treatment plant and then released into the sea, with the risk that hazardous substances have not been totally eliminated prior to discharge into the marine environment.

E. Asbestos management

59. According to the information received, in 2019 there were 1,738 housing units containing hazardous asbestos sheets. Many of these houses are located in poor residential areas, thereby presenting serious environmental justice challenges. The Government continues to slowly dismantle contaminated houses, but removal is done by request. Between 2011 and 2020, 524 tonnes of asbestos was disposed of in the Mare Chicose landfill.³⁰ The process of removing asbestos from housing presents a series of challenges, namely, inhabitants may not know about the programme, they may not have the required legal documents to establish ownership of the house and request removal, many houses are unoccupied without traceable owners, and inhabitants may not consent to removal because they do not have the means to rebuild their houses. According to information provided by the Government, between December 2019 and October 2021, a total of 113 houses had been dismantled. A new contract for the dismantling of 150 housing units was awarded in March 2022.

F. Hazardous wastes

60. The management of hazardous wastes is a major issue of concern in Mauritius.³¹ In a hazardous waste inventory carried out in 2011, it was estimated that about 17,000 tons of hazardous wastes is generated yearly.³² Opportunities for recycling, treatment and disposal exist locally for a few hazardous waste streams, such as waste oil (refined locally) and medical wastes (decentralized incineration). Other hazardous wastes are exported, such as e-waste (exported to South Africa) and car batteries (exported to South Korea).³³

³⁰ Statistics Mauritius, *Digest of Environment Statistics 2020*, table 70.

³¹ UNDP Mauritius, “Brief on environmentally sound management and disposal of hazardous substances and wastes”.

³² Ibid.

³³ Ibid.

61. The Dangerous Chemicals Control Act of 2004 is under the Ministry of Health and Wellness, and the management of hazardous wastes is regulated by the Environment Protection (Standards for Hazardous Wastes) Regulations of 2001.

62. The country faces a major challenge in dealing with hazardous wastes typical of small island developing States: a lack of economies of scale. It is not economically viable to set up treatment and disposal systems for hazardous waste streams for low quantities. According to the Government, infrastructure for the environmentally sound management of hazardous chemical wastes, such as a laboratory, and industrial chemical wastes, including acids, alkalis, heavy metals, spent organic solvents, organic sludges, paint wastes, obsolete pesticides, pharmaceutical wastes, waste gas cylinders and waste aerosols, had until 2016 been lacking, resulting in stockpiles of these hazardous wastes at locations where the wastes were generated and their haphazard disposal into the environment.

63. In 2017, the interim storage facility for hazardous wastes in La Chaumière came into operation and provided infrastructure for the safe management of hazardous wastes generated on the island. However, significant efforts are needed to increase the capture of hazardous chemical waste and, to that end, new legislation is being developed.

64. The Special Rapporteur considers it good practice that the hazardous wastes that cannot be adequately treated due to the limited economies of scale in a small island developing State is exported to a State member of the Organization for Economic Cooperation and Development (OECD) with adequate installations to manage it, in compliance with the Basel Convention. However, information received reveals a gap between the volumes of hazardous wastes that are generated and the quantities of hazardous wastes collected and stored for subsequent export. This gap means that not all hazardous wastes are being managed in an environmentally sound manner and this poses serious threats to human life, health and the environment.

65. In addition, a case study carried out by the Global Environment Facility and UNDP indicated that a cause for concern for Mauritius was a large quantity of dichlorodiphenyltrichloroethane (DDT) (150 tonnes, of which 0.6 tonnes per year is used for malaria control), 5 tonnes of oil containing polychlorinated biphenyls (PCBs) and 100 kg of other persistent organic pollutants (POPs), most of which were stored in unsafe conditions causing severe soil and water contamination.³⁴ Through a joint project, the Global Environment Facility and UNDP disposed of 139 tonnes of DDT, 5 tonnes of PCB-contaminated waste and 300 cubic metres of excavated POPs-contaminated soil.³⁵

G. Medical waste

66. According to data provided by the Ministry of Health and Wellness, approximately 20,000 kg of medical waste is generated on a weekly basis. Mauritius used to operate seven incinerators installed at public hospitals and five incinerators installed at private clinics to treat medical waste.³⁶ However, because the country does not have an air pollutants emission standard in place for point sources, some nearby communities were impacted by incinerator smoke and there was community pressure to close them.³⁷ Several incinerators were condemned by the Ministry of National Infrastructure and Community Development, as they were old, defective and beyond repair. As a result, Mauritius has only one fully functioning incinerator,³⁸ with a second incinerator operating at only 10 per cent capacity,³⁹ which means that 19,000 out of the 20,000 kg of medical waste produced weekly is sent to Mare Chicose for disposal. The remaining 1,000 kg of waste (largely anatomical and pathological wastes)

³⁴ Global Environment Facility and UNDP, *Chemicals and Waste Management for Sustainable Development: Results from UNDP's Work to Protect Human Health and the Environment from POPs* (New York, 2015).

³⁵ Ibid.

³⁶ UNDP Mauritius, "Brief on environmentally sound management and disposal of hazardous substances and wastes".

³⁷ Ibid.

³⁸ At the Brown Sequard Mental Health Care Centre.

³⁹ At Dr. A.G. Jeetoo Hospital.

are incinerated at the Brown Sequard Mental Health Care Centre. However, the best available technology and emissions controls are not used at this incinerator.⁴⁰

67. In a paper published by *Science Direct* in 2014 on how public and private institutions manage medical waste in Mauritius and the related health risks, it was recommended that significant investment in Mauritius be made to ensure the proper management of medical waste.⁴¹

68. To address the lack of capacity, the Government has installed a new incinerator at Jawaharlal Nehru Hospital equipped with an air pollution monitoring device. Furthermore, the Government, in collaboration with UNDP, has procured a new autoclave with a shredder for Victoria Hospital that is expected to be shipped to Mauritius in the third quarter of 2022. According to UNDP, a feasibility study for the setting up of the central health-care waste disposal facility at La Chaumière will be carried out at the start of 2023. The new disposal facility is expected to measure air quality and control air pollutants.

H. End-of-life waste management

69. The Special Rapporteur salutes the insertion of a provision in the Radiation Safety and Nuclear Security Act of 2018 requiring any person wanting to import a sealed radioactive source to make the contractual and financial arrangements necessary for the return of the sealed source to its supplier when it is no longer to be used for its intended purpose.⁴² This type of take-back requirement could be applied to a much broader range of products containing hazardous substances, such as end-of-life automobiles and e-waste, under an extended importer responsibility framework.

70. The Special Rapporteur welcomes the news that the Government is working on regulations that will redistribute the financial burden associated with the management and disposal of end-of-life electrical and electronic equipment to importers, manufacturers and assemblers, and require them to be responsible for the collection, transportation and recovery of these materials in a cost-effective and environmentally sound manner. It is important to note that, from 2011 to 2020, the disposal of difficult and hazardous wastes (mainly e-waste and clinical waste) at the Mare Chicose landfill increased exponentially, from 56 tonnes between 2011 and 2016 to 3,624 tonnes between 2017 and 2020.⁴³

71. Similarly, the Special Rapporteur welcomes the news that, at the time of the drafting of the present report, the Government was working on new legislation for the management of hazardous wastes, a legal framework for the implementation of extended importer responsibility for the management of e-waste, and a legal framework for the management of end-of-life vehicles (with the assistance of the European Union).

VI. Pesticides

A. Legislation on pesticides

72. In Mauritius, the import of pesticides for agricultural use is controlled by the Dangerous Chemicals Control Board, which falls under the purview of the Ministry of Health and Wellness and was set up by the Dangerous Chemicals Control Act of 2004. According to data provided by the Ministry of Agro Industry and Food Security, the quantity of pesticides imported for agricultural purposes declined about 14 per cent between 2015 and 2020.⁴⁴ A tax of 15 per cent has been imposed on the import of insecticides for agricultural

⁴⁰ UNDP Mauritius, “Brief on environmentally sound management and disposal of hazardous substances and wastes”.

⁴¹ C. Bokhoree and others, “Assessment of environmental and health risks associated with the management of medical waste in Mauritius”, *APCBEE Procedia*, vol. 9 (2014), pp. 36–41.

⁴² Section 33 (2) of the Radiation Safety and Nuclear Security Act of 2018.

⁴³ Statistics Mauritius, *Digest of Environment Statistics 2020*, table 70.

⁴⁴ Ministry of Foreign Affairs, Regional Integration and International Trade, “Additional information:

use for the past two years to discourage growers from using hazardous chemicals for pest control. In 2018, Mauritius enacted the Use of Pesticides Act to provide for proper and safe use of pesticides. Consequently, the Ministry of Agro Industry and Food Security adopted several measures and strategies to enforce the Act, including establishing the Pesticides Regulatory Office.

73. At present, two legislative instruments – the Dangerous Chemicals Control Act of 2004 and the Use of Pesticides Act of 2018 – regulate the import, processing, production, distribution and use of pesticides. The Food Act and the Use of Pesticides Act are implemented by different ministries (the Ministry of Health and Wellness and the Ministry of Agro Industry and Food Security, respectively) and both regulate separate (but not mutually exclusive) lists of pesticides. Section 3 (1) of the Use of Pesticides Act provides that the Act is to be in addition to, and not to be in derogation from, the Dangerous Chemicals Control Act of 2004. This may lead to tension between, and the duplication of duties of, the Pesticides Regulatory Office (set up under the Use of Pesticides Act) and the Ministry of Health and Wellness.

B. Sale and use of pesticides

74. The Food and Agricultural Research and Extension Institute ⁴⁵ has proposed recommendations for the use of pesticides on crops and has conducted training on pesticide application for over 2,000 farmers. It has also conducted sensitization campaigns, supported through radio and television programmes, billboards, pamphlets and posters. Furthermore, the Institute is working in collaboration with the Entomology Division of Agricultural Services to sensitize farmers on the safe disposal of empty containers. The Government indicated that action would be initiated for importers and sellers to take back the empty pesticide containers. In this regard, the Special Rapporteur welcomes the pilot project carried out by the Global Environment Facility and UNDP⁴⁶ on empty pesticide containers and the efforts of the Government to scale up the project to the national level. The Government informed the Special Rapporteur that 47 pesticide cages had been installed in vegetable growing regions for the proper disposal of empty pesticide containers and that between 2019 and May 2021 more than 750 kg of empty pesticide containers had been collected and sent for recycling.

75. Furthermore, the Government indicated that it was implementing several strategies to minimize the use of pesticides, including area-wide fruit fly control measures with environmentally friendly techniques, the promotion of pollination of crops by honeybees, a review of pesticide labels, the preparation of an organic agriculture bill⁴⁷ and control measures for pesticide residues on produce.

76. The Special Rapporteur received testimonies about the sale and use of pesticide “cocktails” that are prepared without any scientific basis and exhibit a highly inadequate dosage. At times, these mixtures include highly hazardous pesticides that have already been banned by the Government. This raises questions on stockpiles of banned hazardous pesticides that may illegally enter commerce, as well as on the lack of effectiveness of government controls.

77. In response to these statements, the Government claimed that the “cocktails” of different pesticides were not authorized under the Use of Pesticides Act of 2018. The Government added that farmers were authorized to use one pesticide together with a fungicide according to a compatibility chart issued by the Government, but that it should not

post debriefing session – visit of the UN Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes” (November 2021).

⁴⁵ The Institute was set up under the Food and Agricultural Research and Extension Institute Act of 2013.

⁴⁶ Global Environment Fund and UNDP, *Chemicals and Waste Management for Sustainable Development*.

⁴⁷ The bill is intended to establish legislation on the production of certified organic products and specify authorized pesticides that are safe for organic production.

be considered a “cocktail”. The Government also added that planters were not authorized to stockpile highly hazardous pesticides that were banned.

78. The Government stated that, except for those who grow sugar cane or have fruit orchards, planters who cultivate food rotate crops or plant mixed vegetables. However, it is of particular concern that the extensive use of pesticides in monocultures impoverishes the soil.

79. The Special Rapporteur takes note that the Food and Agriculture Organization of the United Nations noted in a report of 2018 that Mauritius had the highest use of pesticides per area of cropland in the world.⁴⁸ While the Government questioned the accuracy of the data, pointing to a distinction to be drawn between active and inert ingredients of pesticides, the Special Rapporteur stresses that inert ingredients may also be toxic. The Special Rapporteur notes that the proper management of pesticides, including through bans and controls, should address the whole product and its formulation, not only certain ingredients. Accordingly, the distinction between active and inert ingredients should not deflect attention from the otherwise grave concern resulting from the numerous testimonies received regarding excessive use of pesticides, soil loss and exposure of farmers.

C. Health and environmental impacts of pesticides

80. Chemical residues in foods, either unprocessed or processed, are known to create numerous concerns for human health.⁴⁹ For instance, chemicals such as pesticides are often linked to diseases, including cancers.⁵⁰ Specifically for Mauritius, further research and scientific studies should be conducted.

81. Furthermore, run-offs of pesticides and fertilizers during heavy rains can contaminate surface and ground water with toxic chemicals. A two-year monitoring study funded by the Mauritius Research and Innovation Council published in 1995 found residues of herbicides washed from cropland in ground and surface water, with traces present almost a year after application.⁵¹ This indicates that the potential pollution of fresh water by pesticides may be a source of concern in Mauritius.

82. Pesticides can also contaminate the air; in fact, a study in which the presence of 27 pesticides in air samples collected around cropland areas in the region of Réduit was investigated between 2010 and 2018 showed the presence of pesticides (12 at the beginning of the study and 7 at the end),⁵² most of which were considered as “extremely dangerous chemicals” in the Dangerous Chemicals Control Act of 2004.⁵³

83. In addition, the contamination of water and air poses a serious environmental risk and could lead to a loss of biodiversity in Mauritius.

84. The accumulated use of pesticides in Mauritius over the past half century or more is cause for serious concern, given the largely undocumented but prolonged exposure of the population.⁵⁴ According to the Government, the Small Farmers Welfare Fund undertakes regular check-ups and medical tests of farmers, and no major effects on their health have been reported. However, in 2014, the then Ministry of Health and Quality of Life published the report *National Chemicals Profile of the Republic of Mauritius*, where it stated that

⁴⁸ Food and Agriculture Organization of the United Nations, “Pesticides use: global, regional and country trends 1990–2018”, FAOSTAT Analytical Brief, No. 16 (Rome, 2021).

⁴⁹ Irfan A. Rather and others, “The sources of chemical contaminants in food and their health implications”, *Frontiers in Pharmacology*, vol. 8, No. 830 (November 2017).

⁵⁰ K.L. Bassil and others, “Cancer health effects of pesticides”, *Canadian Family Physician*, vol. 53 (October 2007), pp. 1704–1711.

⁵¹ K.F. Ng Kee Kwong, *Monitoring of Pesticide Residue Concentration in Ground and Surface Waters of Mauritius* (Mauritius Research Council, 1995).

⁵² Samuel Fuhriemann and others, “Qualitative assessment of 27 current-use pesticides in air at 20 sampling sites across Africa”, *Chemosphere*, vol. 258 (November 2020).

⁵³ Nitin C. Rughoonauth, “The scourge of pesticides overuse in Mauritius: How far are we in the ongoing ecological disaster?”, Charles Telfair Centre, September 2021.

⁵⁴ Ibid.

studies of health impacts related to chemicals must be conducted on a more regular basis.⁵⁵ In the report, it recommended that studies be undertaken particularly on groups at risk, such as workers handling chemicals on a routine basis and pregnant women or older persons who may be exposed to chemicals. However, it is not apparent whether these studies have been carried out.

D. Inspections of pesticides

85. According to information received from the Government, among the work carried out to enforce the Use of Pesticides Act, authorities collected samples for analyses of pesticide residues⁵⁶ and sent the results to growers with recommendations. As a result of the analyses carried out between 2018 and 2021, 89 improvement notices were issued to suppliers for non-compliance.

86. Nevertheless, the Special Rapporteur is concerned about the fact that public officials seem to carry out inspections and sampling only in the fields of small farmers and not in relation to the practices of large corporate agriculture. While the Government states that the large corporations' staff are qualified and that their activities and inputs are recorded and can be verified, the Special Rapporteur considers that inspections and sampling of the fields of large corporate agriculture are necessary, including for the protection of workers and local communities.

87. The Special Rapporteur is also concerned that there does not seem to be sufficient trained staff in the relevant agencies to carry out adequate control measures on the use of pesticides. Furthermore, the register of farmers does not include all farmers and consequently all the people who use pesticides.

VII. Climate change and human rights

88. The world is facing a triple crisis of pollution, climate change and biodiversity loss, and Mauritius is not immune to it. As a small island State located in an active tropical cyclone basin, Mauritius is particularly vulnerable to the climate change emergency. Impacts that compromise the enjoyment of human rights include flash floods resulting from more frequent and intense storms, increases in air temperature and an average sea level rise of 5.6 mm per year. These impacts can compromise the economic viability of key sectors of the economy of Mauritius, including tourism, agriculture and fisheries.

89. Mauritius was among the first countries to ratify the Paris Agreement on climate change. The Special Rapporteur welcomes the recent revisions to the State's nationally determined contribution to the global response to climate change, whereby Mauritius commits to reducing its greenhouse gas emissions by 40 per cent by 2030, compared to the business-as-usual scenario. The Special Rapporteur applauds its nationally determined contribution pledge to the total phasing out of the use of coal before 2030, the production of 60 per cent of energy needs from green sources by 2030 and the diversion of 70 per cent of waste from the landfill by 2030. The Government is also working on a long-term energy strategy with a view to achieving carbon neutrality by 2070.

90. Furthermore, the Special Rapporteur notes with appreciation the Climate Change Act of 2020, including the setting up of the Climate Change Committee to enable multi-stakeholder participation in the preparation of national climate change strategies and action plans for mitigation and adaptation. This participatory institutional framework, as well as the mention in the nationally determined contribution of public consultations during the process of its elaboration, are consistent with the human rights language of the Paris Agreement. In this regard, the Special Rapporteur takes the opportunity to underline that the meaningful

⁵⁵ Ministry of Health and Quality of Life, *National Chemicals Profile of the Republic of Mauritius* (2014).

⁵⁶ A total of 1,717 samples were collected between September 2018 and May 2021.

participation of the public is a key element of the human rights-based approach to environmental issues, including climate action.

91. All this action on climate mitigation and adaptation is, however, inconsistent with the offshore petroleum bill, which was introduced to the National Assembly of Mauritius in late 2021. The Government states that Mauritius is not a historical emitter of greenhouse gases as compared to industrialized countries and that the bill will accelerate the development of the blue economy. It also states that the purpose of the bill is to repeal the Petroleum Act of 1970 and to reflect stronger commitments to environmental preservation and more transparency. However, oil exploration would only aggravate what is already an existential climate emergency that threatens to undermine the ability of humans to live on our planet Earth.

VIII. Conclusions and recommendations

92. The Special Rapporteur wishes to reiterate his appreciation to the Government for its willingness to discuss matters relevant to his mandate openly and constructively.

93. The Special Rapporteur finds that the MV *Wakashio* disaster was entirely preventable. In this day and age, merchant vessels should not deviate from sea lanes and approach the coast if they are not in distress or calling on a port of the coastal State. The rules of the international law of the sea on the governance of innocent passage and freedom of navigation were crafted for a different world in a different time; in fact, they date centuries back.

94. Today, coastal States should have additional authority to control vessel traffic that may pose a risk to their environment and human rights. In this regard, the Special Rapporteur welcomes the development of revised operational guidelines by the National Coast Guard regarding vessels that may pose a threat to the marine environment of Mauritius, which incorporate lessons learned from the MV *Wakashio* disaster. The Special Rapporteur also welcomes the update of the National Oil Spill Contingency Plan and notes that international cooperation and access to information in real time is essential to face the challenges of the present times, particularly for small island developing States.

95. In the wake of the MV *Wakashio* disaster, the Special Rapporteur hopes that Mauritius will take the steps necessary to ensure appropriate access to remedy for all affected parties. However, the Special Rapporteur is concerned about limited amounts of compensations and delays in their distribution. The Special Rapporteur is also concerned that the court of investigation examining the MV *Wakashio* disaster, appointed in September 2020, has not yet finalized the judicial investigation.

96. The Special Rapporteur wishes to recognize the serious constraints of Mauritius as a small island developing State in the sound management of hazardous substances and wastes. A number of actors spoke to the Special Rapporteur about the State's lack of a strategy to deal with waste. Precisely because it is a small country, issues of waste management are vital to environmental health, as well as to the rights of future generations of Mauritians. The significant delays in addressing what are clearly foreseeable and critical issues concerning waste are highly concerning. The fact that a wall needs to be constructed to expand the Mare Chicose landfill and the fact that the island generates ever-increasing volumes of waste reveal the lack of a proper strategy and plan to deal with solid waste.

97. Similarly, the fact that only one medical waste incinerator is working at capacity and another incinerator at 10 per cent of capacity reveals a failure of planning. The lack of air quality control of the incinerators, in addition to the fact that 95 per cent of the 20,000 kg of medical waste generated each week is sent to the Mare Chicose landfill, further aggravates the island's current waste management problems.

98. Despite these shortcomings, there are good practices in Mauritius that are relevant for other small island developing States. For example, the Special Rapporteur wishes to commend the participation of Mauritius in all multilateral environmental

agreements in the chemicals and waste cluster. The Special Rapporteur takes note of the engineering safeguards at the Mare Chicose sanitary landfill for the prevention of fires and the protection of groundwaters. Also, the interim hazardous waste facility model of storing hazardous wastes for export to OECD countries helps to address the challenge of hazardous wastes where countries lack economies of scale to justify the economic costs of treatment. Furthermore, the decision to ban the import of radioactive waste, coupled with explicit requirements for the return of end-of-life equipment to its source, also reveals a good practice.

99. During his visit, the Special Rapporteur saw a growing momentum around the issue of human rights and hazardous substances and wastes. The Special Rapporteur stresses that solutions are available. What is clear is that the waste problem is not solved by externalizing responsibilities onto individuals and their individual behaviour. The Special Rapporteur wishes to underline the indispensable role of a proper public framework to address the issues of wastes and transition to a non-toxic circular economy, including extended producer and importer responsibilities.

100. Land in Mauritius is at a premium. Fertile soils for food cultivation are vital to food security. But the health of soils is threatened by the overuse of pesticides, including in monocultures. Exposure to agrochemicals can also have severe adverse effects on the health of farmers and nearby communities. While laws and regulations are in the books, the institutional capacities to make their protections a reality is still lacking. The Special Rapporteur hopes that Mauritius will take action on this issue for the protection of workers and local communities, including the proper oversight of large corporate agricultural practices.

101. The Special Rapporteur wishes to recall that, in the context of awareness of the link between human rights and the environment, a monumental milestone was reached during the forty-eighth session of the Human Rights Council. The global recognition of the right to a clean, healthy and sustainable environment by the Council in 2021 gives humanity a new tool to address the existential environmental crisis of pollution, climate change and biodiversity loss. Since the United Nations Conference on the Human Environment in 1972, 156 States Members of the United Nations have incorporated this right into their constitutions, legislation and regional treaties. The Special Rapporteur hopes that one day in the not-too-distant future, he may have the chance to return to Mauritius and, when he does, that the Constitution of Mauritius will also protect the fundamental right to a clean, healthy and sustainable environment.

102. As a small island State, Mauritius is already on the front line of the climate crisis. Allowing oil exploration with the knowledge of the climate emergency is akin to self-injury and it is incompatible with the human rights obligations to respect and protect the rights to life, health and a clean, healthy and sustainable environment.

103. The Special Rapporteur looks forward to continued engagement and collaboration in the years ahead with the Government of Mauritius. He will remain available to the Government and civil society stakeholders for any technical assistance that he might be able to provide in his capacity as the Special Rapporteur.

104. In this context, the Special Rapporteur recommends that the Government:

- (a) Lead an effort during the General Assembly and relevant regional forums and at the International Maritime Organization to tighten controls on the navigation of merchant vessels;
- (b) Continue to carry out monitoring on a long-term basis to record further changes at sites impacted by the MV *Wakashio* oil spill compared to non-impacted sites;
- (c) Conduct a comprehensive analysis of the environmental, human rights (including those relating to physical and mental health, and the right to food) and other socioeconomic consequences of the MV *Wakashio* oil spill;
- (d) Prepare an action plan to address the findings of said analysis and keep monitoring the situation;

- (e) Facilitate the work of the court of investigation on the grounding of the *MV Wakashio* so it can reach a timely conclusion, and ensure that the findings of the investigation are publicly available;
- (f) Ensure that the National Oil Spill Contingency Plan includes communities and civil society as key stakeholders in any response and includes provisions for access to and dissemination of information;
- (g) Strengthen the tools available for civil society to gain access to information on environmental matters, particularly on hazardous substances and wastes;
- (h) Actively involve and ensure meaningful participation of civil society in the drafting of legislation and the implementation of measures to realize the transition towards a non-toxic circular economy and secure the sound management of chemicals and wastes;
- (i) Establish a comprehensive strategy towards a non-toxic circular economy, including measures such as incentives for the collection and recycling of plastics and extended producer and importer responsibility;
- (j) Create an environmental committee within the National Assembly for the open debate of the sobering environmental challenges facing Mauritius;
- (k) Move expeditiously to finalize and implement, in a participatory manner, the solid waste management strategy currently under development, ensuring that it reflects an ambitious strategy and robust plan to address the growing volumes of wastes, including concrete measures to reduce plastic consumption, increase the amount of recycling and reinstate composting;
- (l) Require the best available technology solutions that keep the population protected from hazardous wastes and that are financially sustainable;
- (m) Enact a regulation to reduce emissions of air pollutants from relevant point sources and incorporate the updated air quality standards of the World Health Organization into national legislation and any new authorizations;
- (n) Speed up efforts in the removal of asbestos and ensure that no homes in Mauritius contain cemented asbestos sheets;
- (o) Promptly open the civic amenity centres that are planned and encourage their use;
- (p) Carry out studies on impacts of pesticides on the health of farmers and their families and on the health of consumers;
- (q) Continue awareness-raising on the risks and harms of pesticides and the need for protective measures in their use, as well as capacity-building campaigns on the use of pesticides;
- (r) Promote the use of organic pesticides and actively support agroecology, including market distribution networks for organic products;
- (s) Increase institutional capacity to monitor the sale and use of pesticides and to improve the register of farmers;
- (t) Carry out inspections and sampling of the fields of large corporate agriculture;
- (u) Apply the precautionary principle and take preventive action with regard to the use of pesticides;
- (v) Promptly conclude the organic bill under preparation at the time of the drafting of the present report and include organic fertilizers in the Chemical Fertilizers Control Act of 1980.