

Healthy Ecosystems and Human Rights: The case of fishmeal production in West Africa

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BACKGROUND

1. This submission aims to contribute to the upcoming thematic report by the Special Rapporteur on Human Rights focusing on *human rights and associated obligations related to healthy biodiversity and ecosystems*.
2. We look at one of the main areas of work of Greenpeace in West Africa: the **overexploitation of small-pelagic fish¹** and the **increasing use of this fish for non-human consumption**, as feed in aquaculture, factory farming or in food supplements. We focus on the situation in **Senegal, The Gambia and Mauritania²**.
3. Small pelagic fish constitutes a fundamental basis for food security in the region. The overexploitation of these fish has been exacerbated by the proliferation of factories that process fish into fishmeal and fishoil (FMFO) and export it out of the region.
4. We argue that the mismanagement of small pelagic fisheries and the proliferation of FMFO factories is contrary to a number of commitments and obligations and violates the human rights of West African coastal communities, including the right to life, right to health, right to an adequate standard of living including the right to food, right to a healthy environment and right to culture.
5. We denounce that the aquaculture and factory farming industries, in using thousands of tonnes of edible fish to feed animals, rather than people, are impacting the food security of vulnerable people, depriving them from a much needed food source.

WEST AFRICAN FISHERIES: OVERFISHING AND FISHMEAL/FISHOIL PRODUCTION

6. Our oceans are huge reservoirs of biodiversity and the primary regulator of the global climate. Their conservation is critical to sustainable development and contributes to poverty eradication, providing sustainable livelihoods and food security for billions of people.³ Biodiversity is crucial to the stability and resilience of food sources.⁴
7. Given their importance to FMFO production we focus on Mauritania, Senegal and The Gambia. Primarily three small pelagic species⁵ are used by the FMFO industry.⁶ All three are considered over-exploited⁷ and significant reduction of their catches is recommended to rebuild their populations.⁸
8. Most of these stocks are shared stocks and migrate from Morocco to Guinea, so overfishing in one country has direct implications for fishermen in other countries.
9. The boom in FMFO production in recent years, particularly in Mauritania,⁹ but also in Senegal and The Gambia, is exacerbating overfishing.¹⁰
10. The artisanal fishing sector provides hundreds of thousands of jobs in the region (see para. 20). Coastal communities are losing access to their fisheries as an increasing amount of fish is processed into FMFO. Women are severely impacted (see para 22).
11. The processing of small pelagic fish into FMFO has grown considerably in recent years. In Mauritania, it was estimated that that more than 300,000 tonnes of small pelagics were used in the FMFO industry in 2015. In 2017 it was nearly 550,000 tonnes.¹¹ From January to November 2018, official figures report catches of 1,148,287 tonnes in Mauritania, including 1,090,380 tonnes of pelagic species.¹²
12. In Mauritania the number of FMFO factories grew from 1 in 2005 to 11 in 2012.¹³ By 2015 there were 29 factories able to process up to 1 million tonnes of fish.¹⁴ In 2019 Greenpeace

documented 39 factories in Mauritania, 33 active at the time. Overall, Greenpeace identified 50 factories in the region, with 40 active as of March 2019.

13. The demand of raw material from FMFO factories has brought new industrial fishing fleets from third countries to Mauritanian fishing grounds.¹⁵ Lack of transparency and public information on fishing licenses and on the content of private fisheries agreements make it hard to know the exact number of vessels in the region. FAO regional bodies point to the lack of basic fisheries data,¹⁶ which FMFO activities have worsened.¹⁷
14. In summary, the FMFO industry in West Africa depends primarily on over-exploited stocks for which basic fisheries data are deteriorating, partly as a result of FMFO operations. The sharp increase of FMFO factories in the region has exacerbated the problems of overexploitation and compete directly with local artisanal fishermen, particularly in Senegal and The Gambia.

IMPACTS ON COASTAL FISHING COMMUNITIES

15. The use of hundreds of thousands of tonnes of small pelagics to feed the aquaculture, factory farming or food supplements industries (see para 29) has strong negative impacts on West African people's right to food (availability, access, utilization and stability), health, development and has strong impacts on vulnerable populations.
16. **Food security:** the role of fish has been often overlooked in global discussions on food security. The contribution of fish to food security is simply impressive: "*fisheries and aquaculture provide 3 billion people with almost 20% of their average per capita intake of animal protein, and a further 1.3 billion people with about 15%.*"¹⁸ These global figures mask significantly higher contributions regionally, as in West Africa.
17. The role of fish is not limited to protein supply. Fish are crucial sources of micronutrients (including essential fatty acids, vitamins, minerals), often in highly bioavailable forms.¹⁹
18. The production of FMFO diverts a valuable and essential source of food²⁰ and livelihoods towards an inefficient use of resources.^{21,22} The Fishery Committee for the Eastern Central Atlantic (CECAF) notes: "*the main proportion of sardinella caught in the sub-region is now being processed into fishmeal and exported to Asia. This has a strong effect on food security in the region.*"²³ Almost one in three Gambians are vulnerable to food insecurity and fish contributes over half of the total animal protein intake.²⁴ The Ministry of Fisheries of Senegal stresses the importance of small pelagics to the artisanal fishing sector, representing the majority of the sector's catch, and an important part of the country's fish consumption.^{25,26}
19. **Impacts on women:** in West Africa, as much as 80% of seafood is marketed by women,²⁷ who have a very high participation particularly in the processing and marketing of catches. These contributions are barely recognized.²⁸
20. FMFO factories compete with traditional resource users for access to raw material, leading to decreased availability of fish on the market and declining employment in artisanal processing, mainly of women.²⁹ In May 2019, women from African artisanal fishing organisations stated: "*women in the sector are directly affected by poor resource management. We also have to face unfair competition from other actors, such as fish meal processing plants, which deprive us of our fish and prevent us from contributing to food and nutritional security.*"³⁰
21. **Jobs:** in 2013 it was estimated that globally 660 to 820 million people (fishers, fish farmers, fish traders, workers in processing factories, and their families) depend on fish-related activities as a source of income and "*through fish-related activities fish contribute substantially to the income and therefore to the indirect food security of more than 10% of the world population, essentially in developing countries.*"³¹
22. Fisheries provide more than 600,000 jobs in Senegal,³² and the number of people directly or indirectly deriving income from fisheries could be as high as 825,000.³³ Fisheries provide around 55,000 jobs in Mauritania,³⁴ 80% in the artisanal sector.³⁵ The Gambian population is highly dependent on fisheries resources.
23. **Increased competition with foreign fleets:** as noted earlier, the increasing capacity to process fish into FMFO has translated into increased fishing effort on already overfished stocks, including by additional industrial vessels from third countries.³⁶

EXPORTING FOOD AWAY FROM WEST AFRICAN COMMUNITIES

24. The production of FMFO in West Africa is diverting a valuable and essential source of food and livelihoods. Mauritania, Senegal and The Gambia do not have aquaculture or other industries using FMFO, so virtually all FMFO is exported abroad.
25. Exports of FMFO from Mauritania doubled between 2014 and 2018, making this country the largest exporter in the region. The bulk of Mauritania's production in 2018 was exported to China, the EU, Turkey and Vietnam, which together absorbed over 90% of Mauritania's exports.³⁷ Senegal exports to other African countries and the EU. Tunisia and the EU import most of the much smaller Gambian production. For fish oil, the EU accounts for over half of Mauritania's exports.³⁸ Norway is the second largest importer, followed by Turkey.³⁹
26. Small pelagic fish represent 90% of Mauritania's catches but only 40% of the value of landings.⁴⁰ The FMFO industry attracted high investments (estimated \$US 200 million in 2015)⁴¹ but it is estimated to only provide a relatively low added value (30%) and few unskilled and seasonal jobs. Higher economic returns could be derived from other processing methods, especially processed frozen products.⁴²
27. International trade in fish products should not occur at the expense of the environment, or domestic consumption needs, nor should it cause any significant adverse social or cultural impacts, all of which amount to violations of human rights. Despite having one of the most productive fisheries areas in the world, West African people are among the lowest per capita fish consumers globally, and fish imports continue to increase.

DEMAND FROM AQUACULTURE AND FACTORY FARMING

28. According to the FAO, fishmeal production peaked in 1994 at 30 million tonnes and has followed a fluctuating but overall declining trend since then.⁴³ The FAO projects that in 2030 fishmeal production will be 19% higher than in 2016, with 54% of the growth deriving from improved use of fish waste, cuttings and trimmings from fish processing, and the rest – presumably – from the use of whole fish.^{44,45}
29. In 2016, 69% of the fishmeal production was used by the aquaculture sector, with 23% consumed by the pig sector and 5% by the poultry industry. 75% of the fishoil was used by the aquaculture industry that year.^{46,47} Recent research estimates that 90% of fish destined for uses other than direct human consumption are food-grade or prime food-grade fish, while fish without a ready market for direct human consumption make up a much smaller proportion.⁴⁸
30. Further, the small pelagic species primarily used in FMFO production play a vital role in ecosystems, "*transferring energy from primary producers to higher trophic-level species including large fish, marine mammals and seabirds.*"⁴⁹ Their overfishing has important cascading effects in trophic marine webs and ecosystems.
31. In October 2017, the FAO Subcommittee on Aquaculture noted that "*the culture of high-value aquatic carnivorous species has increased the demand for fish feed, which adds to the already high pressure on wild fish stocks.*"⁵⁰
32. The extent to which aquaculture production is contributing to food security, particularly of the poorer, is in dispute, and there may be different regional realities. Researchers have pointed out that "*where aquaculture is growing, much of it has been aimed at wealthier consumers in domestic cities or in international markets, rather than local rural areas*"⁵¹ and that "*most farmed fish are not reaching nutritionally vulnerable people in the low-income, food-deficit countries of sub-Saharan Africa and the Pacific islands.*"⁵²
33. The case of West Africa, outlined in this submission, shows that FMFO production can have a huge impact on local fisheries, coastal communities and food security.

OTHER ASPECTS

34. Available research indicates that climate change may result in declines in global fisheries production.⁵³ The degradation of marine ecosystems by destructive fishing and overfishing, pollution and climate change, among others, will further undermine food security.⁵⁴

35. The Covid 19 pandemic has shown the importance of policies that support local food production and those who produce it. In the case of West Africa, the FAO has warned of the increasing threats that Covid 19 could pose, from more displacements to less and less access to basic social services, higher food prices and less food.⁵⁵ Senegalese women have already demanded a significant change in fisheries policies in response to the pandemic, and called on the Government to scale-up its support for the local fishing communities which contribute to robust food systems that nourish people.⁵⁶

STATE OBLIGATIONS

36. In order to ensure the conservation of biodiversity and marine ecosystems, maintain abundant fish stocks, and so as fisheries continue to contribute to fulfilling human rights, a number of instruments provide for measures that, if effectively implemented and enforced, can achieve these goals.⁵⁷
37. **The UN Convention on the Law of the Sea (UNCLOS)** lays the basis for States' rights and obligations to ensure that the living resources in the exclusive economic zones are not over-exploited. For shared stocks, UNCLOS imposes the duty for States to, directly or through appropriate subregional or regional organizations, coordinate and ensure the conservation of such stocks.⁵⁸ However, in the case of West Africa, legally binding fisheries management measures agreed regionally are non-existent, as are allocation mechanisms or effective limits to fishing capacity.⁵⁹
38. The **UN Fish Stocks Agreement** provides that management measures must be based on the best scientific evidence available, the precautionary approach and take into account the interdependence of stocks. Management measures must be applied throughout the range of the stocks so that fishing activities by one or several countries do not undermine conservation and management measures. States are required to adopt measures to prevent or eliminate overfishing and excess fishing capacity and effort, and take into account the interests of small-scale fishers.
39. The provisions of the **FAO Code of Conduct on Responsible Fisheries** are regarded as minimum standards. The Code's objectives include to "*promote the contribution of fisheries to food security and food quality, giving priority to the nutritional needs of local communities*".⁶⁰ The Code requires all States "*to cooperate to ensure the effective conservation of the resources*";⁶¹ measures should take into account "*the interests of fishers, including those engaged in subsistence, small-scale and artisanal fisheries*";⁶² give due recognition to "*the traditional practices, needs and interests of indigenous people and local fishing communities*";⁶³ "*States should appropriately protect the rights of fishers and fishworkers, particularly those engaged in subsistence, small-scale and artisanal fisheries [...] as well as preferential access, where appropriate, to traditional fishing grounds*".⁶⁴ In relation to aquaculture the Code provides that "*States should ensure that the livelihoods of local communities, and their access to fishing grounds, are not negatively affected by aquaculture developments*".⁶⁵ In relation to international trade, it should not "*result in environmental degradation or adversely impact the nutritional rights and needs of people for whom fish is critical to their health.*"⁶⁶
40. **The FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (SSF Guidelines)**⁶⁷ constitute the first international instrument dedicated entirely to the small-scale fisheries sector and promote a right-based approach. They provide guidance for small-scale fisheries governance and development, including the enhancement of the contribution of small-scale fisheries to food security and poverty eradication.
41. **Sustainable Development Goals (SDGs)**. The problems described indicate developments contrary to several SDGs including SDG1 (End poverty), SDG2 (end hunger, achieve food security and improved nutrition), SDG5 (achieve gender equality), SDG12 (ensure sustainable consumption and production) and SDG14 (conserve and sustainably use the oceans, seas and marine resources). SDG Target 14.b in particular seeks to "*provide access of small-scale artisanal fishers to marine resources and markets.*" SDG Indicator 14.b.1 looks at progress on policy frameworks "*which recognize and protect access rights for small-scale fisheries.*"

42. **African Charter.** Mauritania, Senegal and The Gambia are all State Parties to African Commission on Human and Peoples' Rights (ACHPR) and have ratified all its binding legal instruments. The right to food is implicitly protected by the African Charter and explicitly safeguarded in the Universal Declaration of Human Rights (UDHR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR), among others.⁶⁸ The right to a healthy environment under article 24 of the Charter is violated in the overexploitation of the pelagic fish stocks and the proliferation of FMFO factories. The ECOWAS Court of Justice in the *SERAP v Nigeria* case established that governments have an obligation to “*seriously and diligently*” hold perpetrators of acts of environmental degradation accountable. The “*omission to act, to prevent damage to the environment and to make accountable the offenders*” is a violation of this right.⁶⁹ In addition, under the African Charter implementation principles, States have a duty to “*refrain from and protect against destruction and/or contamination of food sources*” and “*prevent the destruction of natural resources of the country, in order to protect the right to food and health of future generations.*”⁷⁰
43. The UN Special Rapporteur report on the right to food describes the essential role played by fishery workers in ensuring food security and the right to food, and contributing to the attainment of SDGs 1, 2 and 14.⁷¹

CONCLUSIONS

44. The conservation of marine ecosystems and well managed fisheries are critical to the human rights of many coastal communities around the world, especially in developing countries, as shown in the cases of Senegal, The Gambia and Mauritania.
45. Coastal States need to manage fisheries targeting small pelagic stocks so as to ensure their conservation and in ways that maximise the return for coastal communities, including fostering their contribution to local and regional food security, employment and income. An overview of measures that should be put in place to sustainably manage these fisheries and maximise their social returns are outlined in the Greenpeace report “*A waste of fish. Food security under threat from the fishmeal and fish oil industry in West Africa*” published in April 2019 and attached to this submission.
46. **We would specifically like to call on the Special Rapporteur to note in his report:**
1. the critical importance of sustainable fisheries to human rights, including the right to food in particular and the right to a healthy environment, especially in developing countries and the obligations of States to safeguard these rights, including by holding private actors accountable for environmental degradation that infringes on these rights;
 2. the need to take into account the needs and rights of coastal communities, including to priority access to fishing grounds and fish resources and to their nutritional needs;
 3. the gender dimension of fisheries and the lack of recognition of the role played by women, including through fish marketing, processing and regional trade;
 4. that FMFO production is fuelling further overfishing and threatening food security in West Africa and results in a net transfer of proteins from the region to markets in Asia and Europe;
 5. in consideration of the impact of fisheries on marine ecosystems, and their important role for human food security, wasteful fishing practices and fishing done for wasteful purposes must be eliminated. Fishmeal production should be restricted to fish waste and trimmings, so as to not compete with people.

- 1 Small pelagic fish refer to small species that live in open waters like sardines, sardinellas, mackerel and others.
- 2 The Greenpeace report "A waste of fish. Food security under threat from the fishmeal and fish oil industry in West Africa," published in April 2019 and attached to this submission, examines this issues in greater depth.
- 3 Sustainable Development Goals Knowledge Platform. Oceans & Seas.
- 4 UNGA (2017). Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment. A/HRC/34/49.
- 5 These are sardinella (both round – *Sardinella aurita* – and flat – *Sardinella maderensis*) and bonga (*Ethmalosa fimbriata*).
- 6 Corten, A., Braham, C. B., & Sadegh, A. S. (2017). The development of a fishmeal industry in Mauritania and its impact on the regional stocks of sardinella and other small pelagics in Northwest Africa. Fisheries Research 186: 328-336.
- 7 CECAF (2018). Report of the Working Group on the Assessment of Small Pelagic Fish Off West Africa.
- 8 "The stock of sardinella, in particular *S. aurita*, is being overexploited and that stock size is at an all-time low. To remedy this situation, the working group recommends a substantial reduction of fishing effort in the shortest possible term. The working group cannot quantify exactly the necessary reduction of fishing effort, but it estimates that it should be in the order of at least 50%." CECAF (2018). Report of the Working Group on the Assessment of Small Pelagic Fish Off West Africa.
- 9 Standing, A. (2017). The growth of fishmeal production in Mauritania: The implications for regional food security. Coalition for Fair Fisheries Arrangements.
- 10 Overfishing of these stocks has been a problem for a long time. Already in 2006, the scientific committee of the Fishery Committee for the Eastern Central Atlantic (CECAF) indicated that "the results of the assessments indicate that the stock of round sardinella is overexploited and consequently a decrease in effort in the total sardinella fishery was recommended." CECAF (2006) FAO Working Group on the Assessment of Small Pelagic Fish Off Northwest Africa.
- 11 European Commission (2019). Évaluation rétrospective et prospective du Protocole à l'accord de partenariat dans le domaine de la pêche durable entre l'Union européenne et la République islamique de Mauritanie.
- 12 Ministère des Pêches et de l'Économie Maritime (2018). Synthèse des captures mensuelles de janvier à novembre 2018 par groupes d'espèces en tonnes pour la Pêche Hauturière et la Pêche Côtière hors Sennes Tournantes.
- 13 Kinadjian, L., Soumaré, A. and Naffa, M. L. O. (2015). Rapport final sur le cadre d'investissement pour le développement durable des pêches en Mauritanie 2015-2020.
- 14 Ministère de la Pêche et de l'économie Maritime (2015). Stratégie nationale de gestion responsable pour un développement durable des pêches et de L'économie maritime 2015-2019.
- 15 In the last quarter of 2016, for example, a fleet of about 40 Turkish purse seine vessels started fishing for small pelagic fish in Mauritania.
- 16 "It is extremely worrying that the two countries with the largest interests in the sardinella fishery, Mauritania and Senegal, do not seem to be able to provide adequate data on catches, fishing effort and length composition to the working group." FAO (2018). FAO Working Group on the Assessment of Small Pelagic Fish off Northwest Africa.
- 17 "The development of the fishmeal industry has also led to problems in collecting accurate catch data. In Mauritania the government has imposed restrictions on the amount of round sardinella that can be transformed into fishmeal. As a result, factory owners sometimes report sardinella as bonga in order to avoid the restrictions. In Senegal, the research institute CRODT does not received any information from the fishmeal factories. As a consequence, the catch data reported by CRODT do not contain the catches processed by the fishmeal plants. Hence the catch figures reported for Senegal will be underestimates." CECAF (2018). Scientific Sub-Committee Report.
- 18 High Level Panel of Experts on World Food Security. (2014). Sustainable fisheries and aquaculture for food security and nutrition.
- 19 "Presently, 17% of the global population is zinc deficient, with some subpopulations being particularly at risk. Nearly one-fifth of pregnant women worldwide have iron-deficiency anaemia and one-third are vitamin-A deficient. We estimate that 845 million people (11% of the current global population) are poised to become deficient in one of these three micronutrients if current trajectories in fish-catch declines continue." Golden, C. et al. (2016). Fall in fish catch threatens human health. Nature, 534, 317–320.
- 20 Cashion, T., Le Manach, F., Zeller, D., & Pauly, D. (2017). Most fish destined for fishmeal production are food-grade fish. Fish and Fisheries.
- 21 Approximately four to five tons of whole fish are required to produce one ton of dry fishmeal. Miles, R. D, Chapman, F. A. (2006, reviewed February 2018). The Benefits of Fish Meal in Aquaculture Diets. University of Florida.
- 22 "The benefits of redirecting fish currently used for reduction or "other uses" to direct human consumption could be enormous. From a purely energetic perspective, using fish as feed is inherently less efficient than feeding fish to people." Cashion, T., Le Manach, F., Zeller, D., & Pauly, D. (2017). Most fish destined for fishmeal production are food-grade fish. Fish and Fisheries.
- 23 CECAF (2018). Report of the Working Group on the Assessment of Small Pelagic Fish Off West Africa.

- 24 FAO (2018). The State of World Fisheries and Aquaculture.
- 25 Ministère de l'Economie Maritime (2017). Note sur la mise en œuvre de l'ODD 14 au Sénégal.
- 26 "Fish and seafood contributed to about 43 percent of the intake of animal proteins in 2013, with a yearly consumption of 23.9 kg per person." FAO. Fishery and Aquaculture Country Profiles. The Republic of Senegal.
- 27 FAO's Programme for Gender Equality in Agriculture and Rural Development (2009). Bridging the Gap.
- 28 Harper S, Zeller D, Hauzer M, Pauly D, Sumaila UR (2012). Women and fisheries contribution to food security and local economies. Marine Policy.
- 29 Ministère de la Pêche et de l'économie Maritime (2016). Lettre de Politique Sectorielle de la Pêche et de l'Aquaculture (2016-2023).
- 30 African Confederation of Professional Organizations of Artisanal Fisheries (2019). Conakry Declaration.
- 31 Béné C, Barange M, Subasinghe R, Pinstrip-Andersen P, Merino G, Hemre GI, et al. Feeding 9 billion by 2050. Putting fish back on the menu. Food Secur. 2015;7(2):261–74.
- 32 Ocean Action Hub (2017). Présentation du Sénégal: Présentation du secteur de la pêche.
- 33 Harper, S. and Sumaila, U. R. (2019). Distributional impacts of fisheries subsidies and their reform. Case studies of Senegal and Vietnam. International Institute for Environment and Development.
- 34 European Union (2018) Research for PECH Committee – Fisheries in Mauritania and the European Union.
- 35 Ministère de l'Economie et des Finances (2016). Stratégie Nationale de Croissance Accélérée et de Prospérité Partagée 2016-2030.
- 36 "The fishmeal factories can absorb much larger quantities than the consumption market, and so they have stimulated artisanal fishermen to increase their fishing effort. In Mauritania a whole new fleet of purse seiners has been brought in from abroad to catch fish for the fishmeal plants. The introduction of the fishmeal industry has thus led to a region-wide increase in fishing effort on sardinella." CECAF (2018). Scientific Sub-Committee Report.
- 37 Within the EU, Greece (11,973 tonnes), Spain (7,904 tonnes) and Germany (7,849 tonnes), accounted for 95% of the 29,196 tonnes imported by EU Member States in 2018.
- 38 France alone, with 14,790 tonnes, is responsible for 62% of the EU imports and more than one third of Mauritania's total fish oil exports.
- 39 All facts in this paragraph are taken from Greenpeace (2019). A waste of fish. Food security under threat from the fishmeal and fish oil industry in West Africa.
- 40 European Union (2018) Research for PECH Committee – Fisheries in Mauritania and the European Union.
- 41 Kinadjian, L., Soumaré, A. and Naffa, M. L. O. (2015). Rapport final sur le cadre d'investissement pour le développement durable des pêches en Mauritanie 2015-2020.
- 42 Étude commandée par la commission Pêche du Parlement européen – La pêche en Mauritanie et l'Union Européenne. PE 617.458 - Mars 2018.
- 43 FAO (2018). The State of World Fisheries and Aquaculture.
- 44 Changing Markets Foundation (2019). Fishing for Catastrophe. How global aquaculture supply chains are leading to the destruction of wild fish stocks and depriving people of food in India, Vietnam and The Gambia.
- 45 "A growing share of fishmeal is being produced from fish by-products, which account for about 25 to 35% of the total volume of fishmeal and fish oil produced, with regional variations." FAO (2018). The State of World Fisheries and Aquaculture.
- 46 Bachis, Enrico (2017). Fishmeal and fish oil: a summary of global trends. Presented at the 57th IFFO Annual Conference.
- 47 FMFO can even be found in pet food. See Aldrich, Greg (2017). Marine source proteins and oils in pet food: Nutrition, health, and shelf-life considerations for successful application. Presented at the 57th IFFO Annual Conference.
- 48 Cashion, T., Le Manach, F., Zeller, D., & Pauly, D. (2017). Most fish destined for fishmeal production are food-grade fish. Fish and Fisheries.
- 49 Cashion, T., Le Manach, F., Zeller, D., & Pauly, D. (2017). Most fish destined for fishmeal production are food-grade fish. Fish and Fisheries.
- 50 FAO Committee on Fisheries. Subcommittee on Aquaculture (2017). Aquaculture, the SDGs/agenda 2030 and FAO's common vision for sustainable food and agriculture.
- 51 Golden, C et al. (2016). Fall in fish catch threatens human health. Nature, 534, 317–320.
- 52 Golden C. et al. (2016). Reply to "Are farmed fish just for the wealthy?" Nature, 538, 171.
- 53 "Hindcasts indicate that the maximum sustainable yield of the evaluated populations decreased by 4.1% from 1930 to 2010, with five ecoregions experiencing losses of 15 to 35%." Free, C. M., Thorson, J. T., Pinsky, M. L., Oken, K. L., Wiedenmann, J., & Jensen, O. P. (2019). Impacts of historical warming on marine fisheries production. Science, 363(6430), 979–983.
- 54 "Combining data on dietary nutrition, and fish catch, we predict that more than 10% of the global population could face micronutrient and fatty-acid deficiencies driven by fish declines over the coming decades, especially in the de-

- veloping nations at the Equator.*” Golden, C. et al. (2016). Fall in fish catch threatens human health. *Nature*, 534, 317–320.
- 55 FAO (2020). COVID-19 could not have come at a worse time for vulnerable communities across West Africa.
 - 56 Greenpeace blog by Awa Traoré (2020). We don’t need more fishing licences – we need help to fight COVID-19. See <https://www.greenpeace.org/international/story/43333/fishing-licences-senegal-africa-covid-19-fishmeal-women/>.
 - 57 The list of instruments in this section does not intend to be exhaustive.
 - 58 See UNCLOS articles 61 to 63 in particular.
 - 59 Greenpeace International (2016). Greenpeace briefing to the 21st Session of the Fishery Committee for the Eastern Central Atlantic.
 - 60 FAO Code of Conduct, paragraph 2.f
 - 61 FAO Code of Conduct, paragraph 7.1.3.
 - 62 FAO Code of Conduct, paragraph 7.2.2.c.
 - 63 FAO Code of Conduct, paragraph 7.6.6.
 - 64 FAO Code of Conduct, paragraph 6.18.
 - 65 FAO Code of Conduct, paragraph 9.1.4.
 - 66 FAO Code of Conduct, paragraph 11.2.15.
 - 67 FAO (2015). Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication.
 - 68 Those include the African Charter on Human and Peoples’ Rights (Banjul Charter), the Protocol on the Rights of Women in Africa (Maputo Protocol) and the African Charter on the Rights and Welfare of the Child. The African Charter on Human and Peoples’ Rights recognises the right to life (Article 4), the right to health (Article 16) and the right to economic, social, and cultural development (Article 22). While it does not explicitly mention the right to food, it is implicitly guaranteed in the Charter, and further elaborated in the principles and guidelines for its implementation. In a 2017 Resolution on the Right to Food and Food Insecurity in Africa, the Commission urged Member States, inter alia, to: prioritize and support the most sustainable management and use of natural and other resources for food at the national, local and household levels; and participate in international and regional cooperation efforts and projects aimed at ensuring the right of everyone to be free from hunger in particular through equitable distribution of food supplies in relation to need and to those affected in situations of insecurity. ICESCR article 11 and UDHR article 25 both grant the right to an adequate standard of living including the right to food. In addition, the Constitution of The Gambia places a policy obligation on the State to facilitate equal access to sufficient food (A. 216). Senegal has an implicit right to food through the right to health. Moreover, Article 6 of the ICESCR obliges State Parties to recognize the right of everyone to the opportunity to earn their living by work.
 - 69 SERAP v Nigeria. Judgement N° ECW/CCJ/JUD/18/12. The Court of Justice of the Economic Community of West African States (ECOWAS) 14/12/2012.
 - 70 Principles and Guidelines on the Implementation of Economic, Social and Cultural Rights in the African Charter on Human and Peoples’ Rights.
 - 71 Moreover, it recognises the enhanced vulnerability of groups on the basis of their gender, age and migration status, and that of indigenous and coastal communities. The report also describes the discrimination against women because of informal work arrangements, lack of social protection, harassment at work and income inequality. The report highlights the problems facing small-scale and subsistence fishers who have to compete with industrial operations for access to resources and markets (para. 13). The report also stresses the need to include fishery workers in decision-making processes (para. 49). United Nations General Assembly (2019). Human Rights Council 40th session. Right to food. Report of the Special Rapporteur on the right to food. A/HRC/40/56.