The Republic of Madagascar

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Despite their important contribution to the fishing industry–especially in the small-scale fisheries (SSF) subsector–women are not always recognised and their role in the development of the sector is often minimised. Once a matriarchal society, Madagascar became more patriarchal during colonization, with women today being disproportionately affected by poverty, violence, discrimination, and inequality, as well as having less access to education and decision-making spaces.

There are efforts to increase participation by women in national politics, but these have been slow to reach the fisheries sector, where governance focuses mostly on large-scale fisheries. Policies relating to fisheries pay limited attention to SSF, and do not mention gender or women. These governance shortfalls are being, in part, filled by capacity from local community groups, NGOs

and international organisations working to support and empower small-scale fishers, and especially women in the sector.

This fact sheet provides an overview of the role of capture fisheries production in the Republic of Madagascar, with a focus on gender dimensions, and is a starting point for conversations about how to support gender equity and equality in the sector and beyond. Our hope and intent is to update this document and incorporate new information and perspectives as they arise. It is part of a series meant to offer development agency employees, government agencies, NGOs, funders and researchers with a snapshot of gender and fisheries to inform the planning and delivery of relevant activities these actors might be involved in or are in the process of developing.

Fisheries production

The Sea Around Us estimated total annual marine capture production for Malagasy fleets as follows:

- ► Marine subsistence (2019) 41,965 tonnes
- ▶ Marine commercial (2019) 83,576 tonnes (artisanal here synonymous with small-scale fisheries) within Madagascar's Exclusive Economic Zone (EEZ); 32,192 tonnes (industrial) of which 31,173 tonnes were caught in Madagascar's EEZ, 980 tonnes in Gabon and the remainder in waters off islands within the Mozambique Channel).
- ► For that same year, total industrial catches in Madagascar's EEZ by foreign fleets were estimated at 3,148 tonnes, with Taiwan accounting for 69% of these catches, South Korea 11%, China 9%, and Japan 9%.²

Fish consumption

Average national fish consumption levels were estimated at between 4.26³ and 7 kg per person per year (2019)², with fisheries contributing on average 20% of animal protein consumption.⁴

Fish consumption levels in some villages have been estimated at 50 kg per person per year⁵, and up to 71-120 kg per person per year (2016) for coastal Peoples of Madagascar⁶, highlighting the important variation in protein supply from fisheries across the country.

Economic contribution to GDP

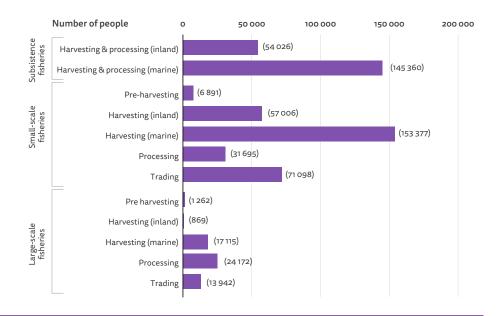
The fisheries sector was estimated to have contributed to about 7% of Madagascar's Gross Domestic Product (GDP) in 2018 and represented 6.6% of total exports.⁷

Note that in certain regions, fisheries make up a much larger proportion of economic activity with, for example, up to 85% of local income derived from fisheries in Madagascar's Velondriake region, highlighting the importance of fishing and gleaning to local economies and livelihoods.⁸

Employment contribution (all)

Official statistics indicate that about 100,000 individuals benefit from direct employment in the fisheries sector (i.e., excluding people involved in pre- and post-harvest activities), with 2,300 individuals engaged across industrial fisheries and 85,999 involved in SSF (within 2,500 villages).²

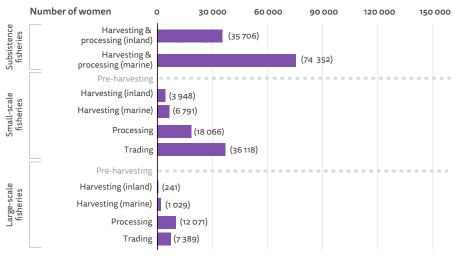
The Illuminating Hidden Harvests (IHH)⁹ Initiative estimated that a total of 576,840¹⁰ individuals engage in the fisheries sector (2022), spanning both inland and marine fisheries, including pre-and post-harvest as well as subsistence fishing activities. Most individuals are involved in the marine small-scale fisheries sub-sector (see graph below). The IHH also estimated that a total of approximately 2,496,835 people depend, at least partly, on fisheries: 1,533,194 in SSF, 743,894 in subsistence fisheries, and 219,747 in large scale fisheries.¹¹



Employment contribution (women)

"Women are active in fisheries, with the small-scale sector providing the greatest source of livelihoods for women"

The Illuminating Hidden Harvests (IHH) Initiative estimated that 195,717 women are active in fisheries, with the small-scale sector providing the greatest source of livelihoods for women. Women are more likely than men to engage in subsistence fishing, representing 66% and 51% of the total number of people engaged in inland and marine subsistence fisheries, respectively. Women also play a key role in the processing and trading of fish, accounting for 57% and 51% of individuals active in these fisheries sub-sectors, respectively, across SSF value chains. Women represent 50% of those in processing and 53% of those in trading activities in the large-scale fisheries sector.



• • Numbers could not be estimated based on availability of data and methods used.

As key stakeholders in Madagascar's fisheries sector, women play a crucial role across the value chain, including in net production, fish processing and marketing. Women's processing techniques consist chiefly of traditional methods. Women typically sell their husbands' catch, a responsibility and task fishers entirely entrust to them.

In terms of harvesting, women mostly engage in reef gleaning¹² and other foot-fisheries targeting octopus, sea cucumber, clams and a variety of other invertebrates and small fish. Men typically fish from boats, diving or with hook and line^{13,14}, and deploy seine nets from the beach.¹⁵ In addition to

using their hands as well as wooden spears (known as a voloso in the local Vezo people dialect) and simple gears, women utilise woven baskets or traps to catch small shrimp or fish. Octopus is an important commodity on local and especially international markets (e.g., France, Italy, Spain and Mauritius), and represents a significant source of income, particularly for women. The octopus fishery is of key importance along Madagascar's southwest coast, where local communities have a very high reliance on fishing for subsistence and income. Over the last decade, the growing interest in octopus as a commercially-valuable commodity has led to an increase in male participation in the fishery, resulting in a decrease in the proportion of landings by women and marginalizing them from decision-making processes.

Social considerations

"Men earn 37% more than women and women are 20% more likely to be unemployed than men" Malagasy societies were once matriarchal, with women playing a prominent socio-economic role within communities, in the succession and transmission of power¹⁸ as well as in politics.¹⁹ However, Malagasy societies have become more patriarchal, particularly in certain regions, as a result of influences, religions and value systems brought by colonization and migration in the 19th century.¹⁸ Consequently, women tend to disproportionately be affected by poverty, discrimination and inequality, such as in access to education. When it comes to work, men earn 37% more than women and women are 20% more likely to be unemployed than men.²⁰ Discriminatory stereotypes also mean that men are recognised as the 'head of the household', women are considered as primarily responsible for the burden of family care and domestic work and in some regions face economic exclusion.^{16,21} Women's access to credit and equipment is extremely limited, a situation that is even more challenging for single women. In most instances women play a limited role in decision-making.

In fisheries specifically, while women's participation in decision-making and stakeholder representation in fisheries organizations is limited²², positive strides have been made in recent years, with women's groups being consulted during information gathering sessions that involve SSF actors. Moreover, several community groups acknowledge the importance of women's experience and knowledge in coastal and marine management. The Ministry of Fisheries and the Blue Economy has also indicated that it places great emphasis on ensuring women's participation at meetings and events related to the fisheries sector.

Women's rights and political empowerment

Article 6 of Madagascar's constitution calls for equal participation of women and men in public, economic, and social life. However, much work remains to be done to support gender equity and achieve full gender equality.

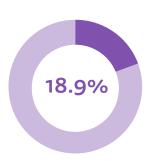
While women and men have equal rights to enter marriage under civil law, in practice, customary marriages are widely practiced and few are legally registered, leaving women without the protections offered in civil law²³ Women also tend to have weaker property rights than men. Customary practice often guides inheritance, with common traditions, while varied among ethnic groups, favouring men to ensure the legacy of the father's name as well as the estate.²³

Madagascar has one of the highest rates of sexual violence in the world: a third of women aged 15 to 49 have experienced at least one form of gender-based violence. Of Moreover, child marriage continues to be widely practiced, with almost four in ten women marrying before the age of 18²⁴, despite

the law specifying the legal age for marriage as 18 years for both women and men. This practice is more prevalent in rural areas and in the southern regions of the country.

While corruption, weak governance, and insufficient integration of gender equality into policies represent some of the key barriers to achieving gender equality for Malagasy women, the government has taken several steps to improve its institutional and policy framework aimed at accelerating the elimination of discrimination against women and promoting women empowerment. Importantly, in 2019, the government implemented legislation to strengthen the legal basis to prevent and prosecute perpetrators of gender-based violence, and to compensate and protect survivors. However, judicial referrals for gender-based violence remain low despite awareness-raising efforts, because of strong attachment to custom and tradition or because perpetrators are often close family members and cases are not brought forward. Each of the key barriers to achieve gender equality in the government has taken several steps to improve the government has taken several steps to improve a taken several steps to improve a taken several steps to improve and promoting women equality in the government implemented legislation to strengthen the legal basis to prevent and prosecute perpetrators of gender-based violence remain low despite awareness-raising efforts, because of strong attachment to custom and tradition or because perpetrators are often close family members and cases are not brought forward.

During the period 2015-2020, the government implemented a gender and elections strategy, targeting enhanced representation and participation of women in decision-making.²⁷ At the end of 2022, women's representation in the National Assembly was 18.9% (28 out of 151), ranking Madagascar 125th in the world out of 187 ranked countries for the number of women parliamentarians.²⁸ There are currently (as of April 2023) ten women among the government's 31 ministers: Yvette Sylla as Minister of Foreign Affairs (Ministre des Affaires Étrangères); Landy Mbolatiana Randrimanantenasoa as Justice Minister (Garde des Sceaux, Ministre de la Justice); Rindra Hasimbelo Rabarinirinarison as Minister of Economy and Finance (Ministre de l'Économie et des Finances); Elia Béatrice Assoumacou as Minister for Higher Education and Scientific Research (Ministre de l'Enseignement Supérieur et de la Recherche Scientifique); Maria-Orléa Vina as Minister for the Environment and Sustainable Development (Ministre de l'Environnement et du Développement Durable); Marie Michelle Sahondrarimalala as Minister for Education (Ministre de l'Éducation Nationale); Lalatiana Rakotondrazafy Andriatongarivo as Minister for Communication and Culture (Ministre de la Communication et de la Culture); Gabriella Vavitsara Rahantanirina as Minister for Technical Education and Vocational Training (Ministre de l'Enseignement Technique et de la Formation Professionnelle); Sophie Ratsiraka as Minister for Handicrafts and Trade (Ministre de l'Artisanat et des Métiers); Princia Soafilira as Minister of Population, Social Protection and the Promotion of Women (Ministre de la Population, de la Protection Sociale et de la Promotion de la Femme).



Percentage of women in the National Assembly in 2022

Key frameworks promoting gender equality and their ratification status

- ✓ Convention on the Elimination of Discrimination Against Women (CEDAW) ratified in 1989.³⁰ Madagascar submitted its 6th and 7th periodic reports in 2014.³¹
- Madagascar has not ratified CEDAW's Optional Protocol.³²
- Madagascar has signed the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women (also known as the "Maputo Protocol") in 2004, but has not ratified it.³³
- Beijing Platform for Action (1995) with national review submitted in 2019.³⁴
- ✓ Southern African Development Community Protocol on Gender and Development (2008).³⁵

Social Institutions and Gender Index (SIGI)

Higher SIGI values indicate higher inequality and ranges from 0 for no discrimination to 1 for very high discrimination. With an aggregated index value of 0.414 in 2023, Madagascar was ranked as having overall high levels of gender discrimination in social institutions.

Year	Total aggregated index value (Category) ³⁶	Discrimination in the family	Restricted physical integrity	Restricted access to productive & financial resources	Restricted civil liberties
2014 ³⁷	0.1002 (Low)	o.4889 (High)	0.3079 (Med.)	0.2048 (Low)	0.3539 (Med.)
2019	0.475 (High)	0.572 (High)	o.316 (Med.)	o.392 (Med.)	0.594 (High)
2023 ³⁸	0.414	0.433	0.309	0.392	0.510

Africa Gender Index (AGI)

Value (2019)³⁹

0.630

(on a scale from 0 to 1, with a score of 1 representing parity between women and men)

Rank (2019)

9

(out of 51 countries)

Gender Inequality Index (GII)

Value (2021)40

0.556

(on a scale from 0, where women and men fare equally, to 1, where one gender fares as poorly as possible in all measured dimensions) Global Rank (2019)

143

(out of 170 countries)

Gender in fisheries governance

While several activities are ongoing within the SSF space, the government to date has tended to focus on the promotion and regulation of large-scale fisheries, with limited resources and capacity deployed in SSF, which are key to women's livelihoods.

Law No. 2015-053 on the Fishing and Aquaculture Code (LOI n° 2015 – 053 Portant Code de la pêche et de l'aquaculture) recognizes the rights of all actors and encourages participation in exploiting and managing fisheries and aquaculture resources but fails to mention gender or women. The update to this law (Loi nº 2018-026 portant refonte de certaines dispositions de la Loi sur le Code de la Pêche et de l'Aquaculture) also does not mention women or gender.

The mission of the Ministry of Fisheries and Blue Economy is to design, implement and coordinate the promotion of the blue economy and the sustainable, fair, equitable and responsible use of marine resources. Its fourth strategic focus is to improve value chains, a dimension that is key to women's livelihoods as they tend to be more involved in processing and marketing rather than the harvesting sector.

Law No. 2012-003 discusses women and gender equality in the context of development strategies. For sustained economic growth, there is a recognized need for increasing employment and access to productive resources through capacity building and improving the institutional framework for social cohesion. Women and gender equality is said to be, "systematically taken into account in all fields, political, economic or social." There is recognition of cross-cutting issues, with environment, climate change, gender equality, democracy, good governance, migration, and communicable and non-communicable diseases. Fisheries are acknowledged for their positive contribution to employment, income generation, food security, and the preservation of livelihood for rural and coastal communities, and hence to poverty reduction. However, gender and women are not mentioned in the context of fisheries in this document.

Legislative Text	Year	
Decree No. 112, Establishing the general organization of maritime fishing		
Law No. 001, On Regions	2004	
Law No. 038, Authorizing the ratification of the Credit Agreement, to the communities of fishermen in Toliary		
Fisheries Partnership Agreement, between Madagascar and the European Community	2007	
Decree No. 137, Regulating Integrated Coastal Zone Management in Madagascar		
Law No. 003, Authorizing the ratification of the revised Cotonou Agreement, concluded between The ACP Countries and the European Union in Ouagadougou		
Protocol setting out the fishing opportunities provided for by the Fisheries Partnership Agreement, between Madagascar and the European Community	2014	
Law No. 053, On the Fisheries and Aquaculture Code	2015	
Law No. 026, Revising certain provisions of the Law on Fisheries and Aquaculture Code		

Threats and drivers of change in fisheries

Several key threats to and drivers of change in Madagascar's coastal ecosystems and encouraging examples of how these may be addressed are outlined below. While threats and drivers of change to fisheries may have specific gender dimensions associated with them, gender integration is necessary in efforts to improve adaptation and foster resilience in the face of change.

▶ There is a long history of small-scale fisheries showing signs of overfishing in several parts of Madagascar^{5,15}, with fishers reporting declines in fisheries resources⁵, requiring them to fish further and further out to sea. A growing coastal population dependent on fishing, due in part to migration from inland areas, and an increase in commercial fisheries targeting international exports have contributed to overcapacity and overfishing.⁴² Resource declines have also been exacerbated through the use of harmful illegal fishing practices such as beach seines, very fine mesh non-selective nets, with a predominantly juvenile fish catch.⁴³

"A current initiative aims to enhance the transparency and management of fisheries and empower and protect the rights of SSF" Overfishing has also been attributed to large-scale effort by industrial distant water fleets, mostly from Europe and Asia. 44,45,46 Some of these operations have been associated with a lack of transparency, a history of illegal or unauthorized fishing⁴⁷ and encroachment into nearshore areas.48 These unsustainable fishing practices pose a significant risk to the livelihoods, food security, and overall well-being of local communities. A current 3-year (2021-2024) initiative spearheaded by Blue Ventures and funded by Oceans 5 aims, through a collaboration with the fisheries authorities in Madagascar, to enhance the transparency and management of the fisheries sector in the country, as well as empower and protect the rights of small-scale fishers.⁴⁹ This will involve monitoring the fisheries and working closely with the relevant authorities. Blue Ventures is also the lead institution of a Fisheries Improvement Project (FIP) focused on octopus in Atsimo Andrefana. Increased fishing intensity on octopus, in part to meet the demand from lucrative markets, has led to overexploitation of the species. The FIP aims to ensure the sustainable use and management of the fishery resource, improve handling and value added to marketed products to secure longterm socio-economic benefits for local community members, especially women.50

- ▶ Madagascar is recognised as one of the world's major biodiversity hotspots.⁵¹ However, **habitat degradation** is a significant concern as nearhore ecosystems such as mangroves, seagrass beds and coral reefs have suffered significant impacts from an increase in human-induced local stressors such as deforestation, unsustainable fishing pressure, lack of resource management, high sedimentation, pollution and coastal development.⁵² Since the 1950s Madagascar has lost more than 40% of its original mangrove cover, mostly due to forests being cut to make way for rice fields, shrimp farms or for the collection of wood to use as fuel and building material. Recent evidence highlights the positive effects of fishing protection levels on the health and ecosystem function of coastal reefs⁵³, pointing to the clear benefits of implementing locally managed marine areas with strong and inclusive involvement of local stakeholders to support fisheries resource management.^{54,55}
- ▶ **Pollution** from land-based sources, including agricultural runoff, sedimentation, untreated sewage, and industrial waste, is having deleterious impacts on Madagascar's coastal waters. This pollution is leading to eutrophication, oxygen depletion, and coral bleaching.
- ▶ Madagascar is one of the countries most vulnerable to **climate change**. facing a high risk of extreme weather events, including cyclones, floods, and severe drought. Climate change is leading to declines in coral reef habitat due to bleaching and the destruction of the reef framework as a result of an increase in sea surface temperature and the frequency and intensity of cyclones, respectively. The coral reef ecosystems in the southwestern region of Madagascar are at high risk due to the compounded impacts of mass coral bleaching events and ocean acidification and are projected to suffer significant degradation by 2050.56 A global assessment of exposure and vulnerability to climate change concluded that Madagascar is also at high risk of storm impacts on fisheries.⁵⁷ It was ranked no. 4 among countries most impacted by extreme weather events in 2018, with 70,000 people being forced to seek refuge from cyclone Ava and Eliakim. The country suffered a total of five cyclones in 2022 and the month-long presence of Tropical Cyclone Freddy in 2023 was estimated to have displaced a total of 24,354 people. 58,59 Close to a million people are facing food insecurity as a result of last year and this year's storms. 59 Climate change-driven increases in adverse weather conditions over recent years are having a negative impact on fishers' access to resources, particularly those who rely on non-motorized, sail driven vessels. 60

"The coral reef ecosystems in southwest Madagascar are projected to suffer significant degradation by 2050" Madagascar is ranked as having very low adaptive capacity to climate change⁶¹, with coastal communities representing some of the most vulnerable and marginalised in the country.⁷ Many do not have access to a plot of land to cultivate nor education or health care, making them especially dependent on fisheries as a livelihood. However, studies show that social capital of many communities is strong with evidence of social networks and socio-ecological resilience.⁵⁵ To support and inform efforts by the Malagasy government to adapt and strengthen climate resilience efforts, the Stimson Centre will deploy its data driven decision support tool CORVI to produce a holistic risk profile in Toamasina.⁶²

Gender in ODA allocation for fisheries

Between 2010 and 2019, Madagascar received a total of USD18.80 million in fisheries Official Development Assistance (ODA) allocations, USD9.58 million of which were earmarked to support gender equality-focused fisheries projects (i.e., tagged with gender markers 1 or 2⁶³).^{64,65} This latter sum represents 11% of gender equality-focused fisheries allocations to Sub-Saharan Africa over that time frame. Most gender-focused financing was provided by Norway (56%) and Germany (37%).

Norway

Germany 37%

Programmes or initiatives aiming to advance gender equality in fisheries

Ampela Tsy Magnavake ('women not segregated'), an initiative launched in 2014 to increase women's participation in octopus fishery management, has been successful at increasing attendance by women in fisheries management fora.¹³

World Wildlife Fund, as well as the United States Agency for International Development⁶⁶ more recently, have promoted public private partnerships, or "contractual community-based farming" to support seaweed farming across many rural coastal communities, with a focus on women smallholder farmers.⁶⁷ The activity is fostering women's economic participation and empowerment, lending them a greater decision-making role within their households and communities. The activity is also contributing to poverty alleviation and improving social and cultural well-being.

Established in 2018, the National Network of Women in Fishing in Madagascar (RENAFEP MADA - Le Réseau National des femmes de la Pêche à Madagascar) is comprised of 86 associations and over 5,000 women working within the fishing sector as fishers, fishmongers, and processors across 12 regions throughout the country. The organization's national headquarters is located in the Atsimo Andrefana region. RENAFEP MADA's goals are to enhance the living conditions of women engaged in the sector, by promoting gender equality and women empowerment⁶⁸ and to protect the marine environment. In the Mahafaly landscape, WWF promotes gender mainstreaming in coastal conservation activities, with a focus on the role of women's economic participation and empowerment in promoting sustainable nature-based local development.⁶⁹

Blue Ventures (BV), a marine conservation organisation that focuses on supporting coastal communities to develop locally led approaches to

"Blue Ventures are building women's agency in fisheries and representation in decision making, and engaging men to help transform gender norms""

marine conservation, is involved in numerous efforts to promote gender equality in fisheries management.70 For years, BV, and other NGOs, have been working with local communities to support octopus reef closures that are equitable and inclusive in their design, management and associated governance mechanisms.71 Women are highly involved in the collection of landings data and participate in decision-making meetings, thereby ensuring their voices and those of other marginalized groups are heard and included. BV is also involved in efforts to reduce post-harvest losses with direct benefits for women who dominate the post-harvest sector. The NGO is further tackling gender inequality in decision-making processes by means of transformative approaches, by engaging men in discussions about gender norms⁷⁰. Efforts are led by initiatives such as Population-Health-Environment and networks like MIHARI (MItantana HArena Ranomasina avy eny Ifotony, which translates as 'marine resource management at the local level'). MIHARI is a civil society movement of locally managed marine areas, connecting over 200 community associations and 25 NGO partners to share best practice and develop management guidelines.⁷² In 2020, local female environmental champion Vatosoa Rakotondrazafy helped launch the Fisher Women Leadership Program. The objective of the programme is to enable women to exercise their rights fully and to reap the benefits of sustainable development by engaging in natural resource management in their communities.⁷³ To support economic empowerment, BV and partners are implementing a fair credit (village savings and loans associations) system to reduce fishers' dependence on exploitative systems and facilitate women's access to financial resources, which can then be used, for example, to be able to pay school fees.

The FAO, through the voluntary guidelines for securing sustainable small-scale fisheries in the context of food security and poverty eradication, in collaboration with the Ministry of Fisheries are contributing to the promotion of gender equality by supporting vulnerable and marginalized coastal communities, including women. A national action plan for small-scale fisheries is currently under development, through a consultative process inclusive of diverse rights and stakeholders, with gender equality as one of its major pillars.

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Fisher woman looking for octopus in the intertidal. Photo : © Blue Ventures



Woman preparing fish to be salted on the beach. Photo : $\ensuremath{@}$ Rindra Rasoloniriana



 $Woman \, smoking \, fish \, in \, northern \, Madagascar. \, Photo: @ \, Blue \, Ventures$

Endnotes and references

- Marine fisheries statistics are derived from catch reconstruction under the Sea Around Us. http://www.seaaroundus.org/data/#/eez The approach utilized builds on national statistics and accounts for discards as well as sectoral catch data that often is not included in official datasets (e.g., artisanal or recreational catches). The Sea Around Us data is also utilized here as a consistent frame of reference for and to facilitate comparison across the set of countries for which fact sheets were developed as part of this project. Sea Around Us data are distinguished according to the following categories: large-scale (i.e., industrial) and small-scale (i.e., artisanal, subsistence and recreational) fisheries catches. Recreational catches were not considered here.
- Ministère de l'Agriculture, de l'Elevage et de la Pêche (2019) Guide d'élaboration des PAP à Madagascar. Ministère de l'Agriculture, de l'Elevage et de la Pêche. Antananarivo, Madagascar. 36 pp. https://www.crc.uri.edu/download/GUIDE-6 MAEP- 1 28 20 w-siq-and-TOC-edit.pdf
- Andrianarisoa A. (2023) Dévelopment pêche et économie bleue Augmenter le taux de consummation annuelle de poissons. https://lexpress.mq/03/01/2023/ 3. developpement-peche-et-economie-blue-augmenter-le-taux-de-consommation-annuelle-de-poissons/
- WorldBank (2020) Madagascar: trouver un équilibre entre conservation et exploitation des ressources marines. https://www.banquemondiale.org/fr/news/ 4. feature/2020/06/08/madagascar-balancing-conservation-and-exploitation-of-fisheries-resources
- Brenier A., Ferraris J. and J. Mahafina (2011) Participatory assessment of the Toliara Bay reef fishery, southwest Madagascar. Madagascar Conservation & 5. Development 6(2): 60-67.
- Cisneros-Montemayor A., Pauly D. and L.V. Weatherdon (2016) A Global Estimate of Seafood Consumption by Coastal Indigenous Peoples. Plos One: 1-16 6.
- WorldBank (2020) Madagascar: Balancing Conservation and Exploitation of Fisheries Resources. https://www.worldbank.org/en/news/feature/2020/06/08/ madagascar-balancing-conservation-and-exploitation-of-fisheries-resources.
- Barnes-Mauthe M., Oleson K.L.L. and B. Zafindrasilivonona (2013) The total economic value of small-scale fisheries with a characterization of post-landing 8 trends: an application in Madagascar with global relevance. Fisheries Research 147: 175-85.
- FAO, Duke University and WorldFish (2023) Illuminating Hidden Harvests The contributions of small-scale fisheries to sustainable development. Rome. https://
- Estimates calculated based on labour force surveys and Income Expenditure Surveys as part of the Illuminating Hidden Harvests project.
- According to IHH estimates, 3.23 million people belong to household where at least one person engages in fisheries or in subsistence fishing.
- Gleaning is a fishing method typically done by hand and used in shallow coastal waters or habitats exposed during low tide, as well as estuarine and freshwater
- Gardner C.J., Rocliffe S., Gough C., Levrel A., Singleton R.L., Vincke X. and A. Harris (2017) Value chain challenges in two community-managed fisheries in western Madagascar: insights for the small-scale fisheries guidelines. in S. Jentoft et al. (eds) The small-scale fisheries guidelines: Global implementation, vol. 14, MARE Publication Series, Springer International Publishing. pp. 335–54.
- Barnes D.K.A. and K.A. Rawlinson (2009) Traditional coastal invertebrate fisheries in South-Western Madagascar. Journal of the Marine Biological Association of the United Kingdom 89(8): 1589-96.
- Grenier C. (2013) Genre de vie vezo, pêche « traditionnelle » et mondialisation sur le littoral sud-ouest de Madagascar. Annales de géographie 693: 549-571
- Shrestha S. (2022) Gender roles in natural resource use in Madagascar. Master of Science thesis. Montclair University, USA. https://digitalcommons.montclair. edu/cgi/viewcontent.cgi?article=2042&context=etd
- MSC (2017) Working towards sustainability in Madagascar's reef octopus fishery. https://www.msc.org/media-centre/news-opinion/news/2020/02/25/workingtowards-sustainability-in-madagascar-s-reef-octopus-fishery
- Andriamanondehibe K. (2020) Déconstruire l'antagonisme entre féminisme et société à Madagascar 1/3 Le matriarcat à Madagascar: mythe ou réalité ? Retour sur la société précoloniale. Institut Du Genre En Géopolitique (blog). https://igg-geo.org/?p=1569&lang=en
- Stefan Amirell, "Female Rule in the Indian Ocean World (1300-1900)," Journal of World History 26, no. 3 (2015): 443-89.
- Gaye D. (2020) In Madagascar, Women's Empowerment Is Gaining Ground. https://blogs.worldbank.org/nasikiliza/madagascar-womens-empowerment-gaining-
- Gezon L.L. (2002) Marriage, Kin, and Compensation: A Socio-Political Ecology of Gender in Ankarana, Madagascar. Anthropological Quarterly 75(4): 675–706
- Baker-Médard M. (2017) Gendering Marine Conservation: The Politics of Marine Protected Areas and Fisheries Access, Society and Natural Resources 30(6):
- CEDAW (2015) Concluding observations on the combined initial to fifth periodic reports of Madagascar.
- UN Women (n.d.) Global Database on Violence against Women. Madagascar. https://evaw-global-database.unwomen.org/en/countries/africa/ madagascar?typeofmeasure=ccba1c2f70b74a54ac19322fa56fe887#1
- United Nations Population Fund (2019) Fighting for justice against gender-based violence in Madagascar. https://reliefweb.int/report/madagascar/fighting-justiceagainst-gender-based-violence-madagascar
- UNFPA (2022) Fighting for justice against gender-based violence in Madagascar. https://reliefweb.int/report/madagascar/fighting-justice-against-gender-based-
- CEDAW (2015) Concluding observations on the combined sixth and seventh periodic reports of Madagascar.
- IPU Parline (2023) Monthly ranking of women in national parliaments. https://data.ipu.org/women-ranking?month=11&year=2022
- Visit https://oceanrisk.earth/to read summaries of key conventions/policies as well as additional information about key indicators.
- OHCHR (n.d.) UN treaty Body Database. https://tbinternet.ohchr.org/_layouts/15/TreatyBodyExternal/Treaty.aspx?CountryID=103&Lang=en OHCHR (n.d.) UN Treaty Body Database. https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/TBSearch.aspx?Lang=en&TreatyID=3
- OHCHR (n.d.) UN Treaty Body Database. https://tbinternet.ohchr.org/_layouts/15/TreatyBodyExternal/Treaty.aspx?CountryID=103&Lang=en
- Centre for Human Rights (n.d.) Madagascar. https://www.maputoprotocol.up.ac.za/index.php/madagascar
- Ministère de la population, de la protection sociale et de la promotion de la femme. Rapport de la République de Madagacar dans le cadre du vingt-cinquième anniversaire de la quatrieme conference mondiale sur les femmes et de l'adoption de la declaration et du programme d'action de Beijing en 2015. https://uneca. org/sites/default/files/Gender/Beijing25/madacascar-beijing25_report.pdf
- SADC (2008) Southern African Development Community: Protocol on Gender and Development. https://genderlinks.org.za/wp-content/uploads/2016/01/ ADOPTED-REVISED-PROTOCOL-ON-GAD.pdf.
- Social Institutions and Gender Index. https://www.genderindex.org/
- The 2014 SIGI included son bias as an additional category, which for Madagascar scored very low on- explaining the overall ranking as low as well
- SIGI (2023) Social Institutions & Gender Index. https://www.oecd.org/stories/gender/social-norms-and-gender-discrimination/sig
- African Development Bank (2020) Africa Gender Index 2019 Methodological and statistical report. Building today, a better Africa tomorrow.
- UNDP (2022) Gender Inequality Index. https://hdr.undp.org/data-center/thematic-composite-indices/gender-in
- Gough C.L.A., Dewar K.M., Godley B.J., Zafindranosy E. and A.C. Broderick (2020) Evidence of Overfishing in Small-Scale Fisheries in Madagascar. Frontiers in Marine Science 7
- Le Manach F., Gough C., Humber F., Harper S., and D. Zeller (2011) Reconstruction of total marine fisheries catches for Madagascar (1950-2008). Fisheries Centre Research Report 19: 21-374
- Nordgren L. (2015) Opportunity costs of growth-overfishing: socioeconomic evaluation of the beach-seine fishery, Bay of Ranobe, Madagascar. PhD dissertation. University of Akureyri, Iceland.
- Le Manach F., Andriamahefazafy M., Harper S., Harris A., Hosch G., Lange G. M. ...and U.R. Sumaila (2013) Who gets what? Developing a more equitable framework for EU fishing agreements. Marine Policy 38: 257-266.
- Carver E. (2019) Madagascar: Opaque foreign fisheries deals leave empty nets at home. https://news.mongabay.com/2019/10/madagascar-opaque-foreign-fisheries-
- Stäbler M., Letschert J., Fujitani M. and S. Partelow (2022) Fish grabbing: Weak governance and productive waters are targets for distant water fishing. Plos one 17(12), e0278481.
- Razafison R. (2022) Murky provenance of a Chinese fleet clouds Madagascar shrimp fishery. https://news.mongabay.com/2022/05/murky-provenance-of-a-chinesefleet-clouds-madagascar-shrimp-fishery/

- 48. White E.R., Baker-Médard M., Vakhitova V., Farquhar S., and T.T. Ramaharitra (2022) Distant water industrial fishing in developing countries: A case study of Madagascar. Ocean & Coastal Management 216: 105925.
- 49. Oceans (n.d.) Ending Destructive Industrial Fishing in Madagascar and the Western Indian Ocean. https://www.oceans5.org/project/ending-destructive-industrial-fishing-in-madagascar-and-the-western-indian-ocean/
- 50. Fishery Progress (2023) Southwest Madagascar octopus diving & gleaning. https://fisheryprogress.org/node/10360/info
- 51. Brooks T.M., Mittermeier R.A., Da Fonseca G.A., Gerlach J., Hoffmann M., Lamoreux J.F., ... and A.S. Rodrigues (2006) Global biodiversity conservation priorities. Science 313(5783): 58-61.
- 52. Harris A., Manahira G., Sheppard A., Gouch C. and C. Sheppard (2010) Demise of Madagascar's once great barrier reef: changes in coral reef conditions over 40 years. Atoll Research Bulletin 574 (16)
- 53. Randrianarivo M., Guilhaumon F., Tsilavonarivo J., Razakandrainy A., Philippe J., Botosoamananto R.L., ... and M. Adjeroud (2022) A contemporary baseline of Madagascar's coral assemblages: Reefs with high coral diversity, abundance, and function associated with marine protected areas. Plos one 17(10): e0275017.
- 54. Ratsimbazafy H., Lavitra T., Kochzius M. and J. Huge (2019) Emergence and diversity of marine protected areas in Madagascar. Marine Policy 105: 91–108.
- 55. McClanahan T.R. and C. Jadot (2017) Managing coral reef fish community biomass is a priority for biodiversity conservation in Madagascar. Marine Ecology Progress Series 580: 169–190.
- 56. Harding S. (2019) Madagascar. In Sheppard C. (ed) World Seas: an Environmental Evaluation. Academic Press. pp. 121-144
- 57. Heck N., Beck M.W. and B. Reguero (2021) Storm risk and marine fisheries: a global assessment. Marine Policy 132:104698.
- 58. World Food Programme (2022) WFP Madagascar Cyclone Response Update (As of 15 April 2022). https://reliefweb.int/report/madagascar/wfp-madagascar-cyclone-response-update-15-april-2022
- 59. World Food Programme (2023) WFP Madagascar Cyclone Response Update (As of 6 April 2023). https://reliefweb.int/report/madagascar/wfp-madagascar-cyclone-response-update-6-april-2023
- 60. Farquhar S., Nirindrainy A.F., Heck N., Saldarriaga M.G. and Y. Xu (2022) The impacts of long-term changes in weather on small-scale fishers' available fishing hours in Nosy Barren, Madagascar. Frontiers in Marine Science 9.
- 61. Huelsenbeck M. (2012) Ocean-based food security threatened in a high CO2 world: a ranking of nations' vulnerability to climate change and ocean acidification.

 Oceana
- 62. ORRAA (2022) Identifying Climate-Smart Solutions in SIDS and Coastal Cities using the Climate and Ocean Risk Vulnerability Index (CORVI) https://oceanriskalliance.org/project/identifying-climate-smart-solutions-in-sids-and-coastal-cities-using-the-climate-and-ocean-risk-vulnerability-index-corvi/
- 63. Gender markers are qualitative statistical tools to record development activities that target gender equality as a policy objective. Please consult the metadata and indices factsheet on our website for further details. https://oceanrisk.earth/
- 64. OECD (2022) Detailed aid statistics: Official and private flows. OECD International Development Statistics (database). https://doi.org/10.1787/data-00072-en
- 65. Wabnitz C.C.C., Blasiak R., Harper S., Jouffray J.-B., Tokunaga K., and A.V. Norström (2021) Gender dynamics of ocean risk and resilience in SIDS and coastal LDCs. Ocean Risk and Resilience Action Alliance (ORRAA) Report. https://oceanrisk.earth/
- 66. Anon (2022) USAID backs \$6.3 million Madagascan sea cucumber and seaweed project. https://thefishsite.com/articles/usaid-backs-6-3-million-madagascan-sea-cucumber-and-seaweed-project
- 67. Msuya F.E., Bolton J., Pascal F., Narrain K., Nyonje B. and E.J. Cottier-Cook (2022) Seaweed farming in Africa: current status and future potential. Journal of Applied Phycology 34(2): 985-1005.
- 68. https://lexpress.mg/18/03/2021/droits-de-la-femme-entre-debrouillardise-dependance-et-aspirations/
- 69. WWF (2017) Empowering women economically through sustainable natural resource use. Case study of isolated coastal communities of Mahafaly landscape Madagascar https://media.wwf.no/assets/attachments/103-madagascar_study_2.pdf
- 70. Blue Ventures (n.d.) Empowering women, engaging men. https://blueventures.org/what-we-do/gender-equality/
- 71. Westerman K. and S. Benbow (2013). The role of women in community-based small-scale fisheries management: the case of the southern Madagascar octopus fishery. Western Indian Ocean Journal of Marine Science 12(2): 119-132.
- 72. Obaidullah F. and Winck (2023). Inspiring Voices, Chapter 32 in Obaidullah (ed) pp. 347-365. The Ocean and Us. Springer, Switzerland.
- 73. Blue Ventures (2020) The MIHARI Network and the Madagascar PHE Network join forces to create leadership opportunities for women in fisheries. https://blueventures.org/the-mihari-network-and-the-madagascar-phe-network-join-forces-to-create-leadership-opportunities-for-women-in-fisheries/









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