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Transforming capture fisheries and aquaculture towards sustainability in Asia and the Pacific region

Executive Summary

The capture fisheries and aquaculture sectors are particularly important for food security, livelihoods and the economies of Asia and the Pacific region. The region accounts for the majority of global aquaculture production and approximately 50 percent of all capture fisheries production, and is home to the majority of the world's small-scale fisheries. Trade of aquatic products is considerable both within the region and globally. When managed and developed sustainably, aquatic food systems in both marine and freshwaters, including aquaculture and fisheries of the region, have the capacity to produce a sustainable and resilient source of food and livelihoods. To assist Members in achieving sustainable, resilient and inclusive aquatic food systems within their own national economic, social and resource contexts, FAO developed a vision for Blue Transformation based on three core pillars: sustainable aquaculture; sustainable fisheries; and sustainable trade and value chains.

This document summarizes FAO's Blue Transformation vision and provides an overview of how this applies to the context of Asia and the Pacific region. This document identifies some capacity-building and technical assistance areas that may be of priority to Asia and the Pacific region. They include: aquaculture innovation and investment; support to improved fishery assessment for sustainable, adaptive management; strengthened support to small-scale fisheries policy; and review of fishery support mechanisms and their linkage to trade. The document outlines key opportunities for Members to invest in and promote Blue Transformation in their capture fishery and aquaculture subsectors and associated seafood value chain sectors in order to increase the contribution of aquatic food systems to provide a significantly larger proportion of the nutritious food and resilient livelihoods in the region and to help achieve the 2030 Agenda for Sustainable Development.

Suggested action by the Regional Conference

The APRC is invited to provide guidance on priorities for technical assistance to support:

- investment and innovation to increase the contribution of aquatic foods from aquaculture and capture fisheries to sustainable and resilient agrifood systems;
- transforming sustainable fish value chains to reduce loss and waste and to increase equitable benefits and food distribution;
- promoting and implementing innovative and inclusive systems for sustainable and adaptive fisheries management; and
- improving policies and programmes for integrated science-based management, technological innovation and private-sector and stakeholder engagement, promoting inclusive, sustainable and resilient aquatic food systems.

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Introduction

1. For 3.3 billion people on the planet, aquatic foods provide at least 20 percent of the average per capita intake of animal protein, providing a unique source of omega-3 fatty acids and essential micronutrients that are critical to people's cognitive and physical development. In 2020, around 600 million people globally had livelihoods that were dependent on aquatic food systems, including 58 million people working in primary production. When considering the entire value chain, approximately half of those employed are women. That same year, first-sale value of aquatic production was around USD 406 billion, and world exports of aquatic products, excluding algae, were worth USD 150 billion, reaching a new record high of USD 176 billion in 2021. Aquatic products represent one of the most traded global food commodities.[1]

2. Asia and the Pacific region makes a significant contribution to these global figures, and the region exemplifies this contribution of aquatic food systems to food security and nutrition and resilient livelihoods.

3. Marine fishery landings from the region reported to FAO (wild capture, and not including aquaculture) have averaged 38 to 40 million tonnes per year since the late 1990s, accounting for nearly 49 percent of the world's total marine capture fisheries production. Over the past 30 years, the reported catches from capture fisheries have been declining in the Northwest Pacific, have nearly doubled and are considered sustainable in the Western Central Pacific, and have had a slower rise in the Eastern Indian Ocean, which is regarded as stable.

4. Aquaculture production in the region has been expanding for decades, producing 91 percent of globally farmed aquatic animals and algae in 2021.[2] In the region, aquaculture also provides approximately 63 percent of all fisheries and aquaculture production of aquatic animals and 71 percent if algae are included. The leading producers in the region and also at global level are China, Indonesia, India, Viet Nam and Bangladesh, and it is predicted that aquaculture production will continue to increase.

5. For those people employed in primary production globally, around 65 percent were employed in fisheries and 35 percent in aquaculture, these employment figures are levelling for aquaculture in recent years, while the global number of fishers has contracted. In 2020, 49.4 million people were involved as fishers and fish farmers in Asia, representing 84 percent of global employment in the two sectors. Of these, 19.3 million were engaged in aquaculture.

6. Globally, small-scale fisheries (SSF) are a significant component of capture fisheries, providing an estimated 36.9 million tonnes of catch (average 2013-2017), generating 44 percent of the total landed economic value of the catch,[3] and engaging 113 million people along various value chains in 2016. At least half of the people employed in SSF and aquaculture along the entire value chain are women.

7. Compared with almost every other animal protein production system, aquatic food production systems produce fewer carbon emissions, consume less water, and leave a smaller environmental footprint. They also provide indirect benefits to stakeholders, such as environmental stewardship, ecosystem services and cultural identity. The magnitude of these benefits shows the opportunities for aquatic food systems to support the Sustainable Development Goals (SDGs).

8. Although aquatic food systems are efficient producers of nutritious food, there are important challenges regarding their sustainability. Pollution, overfishing and poor management of fisheries, inefficient and overcrowded aquaculture, and unequal distribution of benefits along value chains, among other challenges, hamper the ability of aquatic food systems to maximize their contribution to sustainable development across Asia and the Pacific region and globally. Furthermore, climate change

[1] FAO. 2022. The State of World Fisheries and Aquaculture 2022. Towards Blue Transformation. Rome, FAO. https://doi.org/10.4060/cc0461en
[2] FAO FishStatJ 2023
[3] FAO, Duke University & WorldFish. 2023. Illuminating Hidden Harvests – The contributions of small-scale fisheries to sustainable development. Rome. https://www.fao.org/3/cc4576en/cc4576en.pdf

is having an effect on marine, coastal and inland environments, producing changes in habitats, stocks and species distribution. The increased frequency and intensity of extreme weather events, such as excessive rainfall, cyclones and droughts, are threatening lives and livelihoods of smallholders and are causing large-scale economic losses, which are often under-accounted for due to lack of data to calculate damage and loss.[4] Food quality may also be threatened with the increased risk of species invasions and the spreading of vector-borne diseases.

9. The Declaration for Sustainable Fisheries and Aquaculture,[5] adopted at the 34th Session of the FAO Committee on Fisheries (COFI) in 2021, fully recognized the contribution of fisheries and aquaculture to fighting poverty, hunger and malnutrition, its ability to prepare for and respond to the projected impacts of climate change, and committed to sustainability. Aligned with the FAO Strategic Framework 2022-31,[6] the 2021 COFI Declaration for Sustainable Fisheries and Aquaculture, and the targets of SDG 14 (Life Below Water), FAO developed the Blue Transformation Roadmap to expand aquatic food systems and increase their contribution to healthy diets, ensuring environmental stewardship and inclusive and sustainable growth.

10. This document assesses the potential contribution of Asia and the Pacific region to these three objectives. It reviews current work on aquatic food systems as well as opportunities and potential actions to deliver on these goals.

Blue Transformation

11. Transforming aquatic systems to improve their sustainability, resilience, efficiency and performance offers significant benefits. FAO estimates that by transforming global aquatic food systems, aquatic food production could grow from 178 million tonnes in 2020 to almost 250 million tonnes per year, and apparent per capita consumption of aquatic foods can increase to 25.5 kilograms per capita per year by 2050. However, producing more aquatic food does not automatically lead to lower hunger rates, improved livelihoods or sustainable outcomes. These results require a concerted effort that considers environmental impacts as well as the social and economic viability of every element of an aquatic food system.

12. Blue Transformation[7] is a targeted effort by which agencies, governments and stakeholders can use existing and emerging knowledge, tools and practices to secure and sustainably maximize the contribution of aquatic food systems to food security, nutrition and affordable healthy diets for all. FAO Members have already highlighted the importance of Blue Transformation as FAO's vision to achieve sustainable aquatic food systems[8] through three core outcomes:

a. sustainable intensification and expansion of sustainable aquaculture satisfies rising global demand for aquatic foods and distributes benefits equitably;
b. effective management of all fisheries and aquaculture delivers healthy stocks and secures equitable livelihoods; and
c. upgraded value chains ensure the social, economic and environmental viability of aquatic food systems.

13. The Blue Transformation offers a vision of how aquatic food systems can maximize their potential, as drivers of employment, economic growth, social development, economic recovery and environmental preservation, particularly in the face of climate change impacts and the competition over resources.

[4] FAO. 2023. *The impact of disasters and crises on agriculture and food security.* http://www.fao.org/3/cc7900en/cc7900en.pdf
[5] FAO. 2021. *2021 COFI Declaration for Sustainable Fisheries and Aquaculture*. Rome. https://doi.org/10.4060/cb3767en
[6] FAO. 2021. *FAO's Strategic Framework 2022-31*. Rome. https://www.fao.org/3/cb7099en/cb7099en.pdf
[7] FAO. 2022. *Blue Transformation - Roadmap 2022–2030: A vision for FAO's work on aquatic food systems.* Rome. https://www.fao.org/3/cc0459en/cc0459en.pdf
[8] FAO. 2023. *Report of the 172nd Session of the FAO Council*. Rome. https://www.fao.org/3/nm116en/nm116en.pdf

Sustainable aquaculture expansion and intensification to feed Asia and the Pacific region

14. An ever-increasing global population and a fuller understanding of the health benefits of aquatic foods mean that global demand for aquatic foods continues to grow. Aquaculture must grow sustainably to satisfy this demand, while generating new or securing existing sources of income and livelihood opportunities.

15. Global aquaculture production (aquatic animals and algae) has increased by 54 percent since 2011, exceeding 126 million tonnes in 2021, thus remaining one of the fastest growing agricultural producing sectors in the world. In 2021, aquaculture had a share of about 50 percent of the total production of aquatic animals and 58 percent if algae are included. Asia and the Pacific region accounted for 88 percent of the global aquaculture production of aquatic animals (91 percent if algae are included).[9]

16. FAO's Blue Transformation Roadmap envisions three key global targets for sustainable aquaculture:

a. global sustainable aquaculture production grows by at least 35 percent by 2030;
b. growth in aquaculture employment and skilled labour improves income and livelihoods; and
c. all women and men achieve full and productive employment and decent work in the aquaculture sector by 2030.

17. Key thematic areas of the Blue Transformation Roadmap include: effective global and regional cooperation, planning and governance; introduction of innovative technology and management systems; equitable access to resources and services for fish farmers; minimal environmental impact of aquaculture systems; and more efficient use of aquaculture inputs. In addition, the growth and impacts of aquaculture development will be monitored and reported on regularly.

18. Through FAO and the Network of Aquaculture Centres in Asia-Pacific (NACA) collaboration on a High-Level Meeting on Aquaculture Transformation and private sector dialogues for priority policy direction, a White Paper[10] was developed that is broadly aligned with the strategic goals of the Blue Transformation Roadmap. The White Paper provides guidance on how to translate the Roadmap into actions to support sustainable intensification and expansion of aquaculture in Asia and the Pacific region with a vision in which aquaculture is transformed into more efficient, inclusive, resilient and sustainable aquatic food systems through innovation, investment and partnerships.

19. Recommended approaches for implementing such a transformation emphasize: recognizing the importance of science, knowledge and data, and making efficient use of it; measuring progress towards transformation; adopting a holistic aquatic food systems approach; stimulating greater innovation; being people-centred and inclusive; engaging markets and consumers on the road to achieving sustainable aquaculture; grounding approaches in relevant international best practices; and encouraging continuous improvement and learning. It is also important to recognize the important role of small-scale aquaculture as a low-risk system for food production and agricultural livelihood diversification.

20. Overall, the Blue Transformation Roadmap foresees:

a. major aquaculture-producing countries heading towards sustainable intensification, improving sustainability and circularity, reducing environmental impacts and resource use footprint and water/feeds/space, and improving market accessibility for their products;

b. countries with less well-developed aquaculture boosting their aquaculture sectors through innovation and investment and expanding their domestic and regional markets, noting that

[9] FAO FishStatJ, 2023

[10] FAO & NACA. 2023. *Aquaculture transformation – Innovation and investment for sustainable intensification and expansion of aquaculture in Asia and the Pacific region*. Bangkok. https://www.fao.org/3/cc4962en/cc4962en.pdf

many smaller countries, particularly in the Pacific region, face barriers to their aquaculture development and also have limited comparative advantage in terms of high production and transport costs, and limitations of labour, inputs and accessible markets; and

c. all countries with access to marine waters showing increasing interest in expanding their mariculture sector.

21. Recognizing the need for continued momentum towards aquaculture [aquatic food systems] transformation in Asia and the Pacific region, FAO and NACA recommend that governments focus on creating an enabling environment for greater innovation and investment in aquaculture by:

a. developing national policies and plans that promote and stimulate aquaculture innovation and enable investments that allow wider adoption of aquaculture innovation and strategic new investment in the country's priority technical areas;

b. promoting public and private sector partnerships that encourage progressive investment to build innovation ecosystems for growing innovators, entrepreneurs, incubators, start-ups and micro, small and medium enterprises whose businesses aim to transform aquaculture and tackle global challenges affecting food security and nutrition; and

c. establishing an aquaculture innovation and investment mechanism with mandates to implement national policies and plans, promote innovation and investment in aquaculture transformation, and monitor progress.

22. FAO is cooperating with various partners to explore opportunities to support aquaculture innovation and investment (e.g. Asian Development Bank, Global Environment Facility, Green Climate Fund, and World Bank), including through new partnership mechanisms such as the Global Sustainable Aquaculture Advancement Partnership, to coordinate and accelerate actions, support exchanges of technology and good practices, and build capacity. These partnerships bring together stakeholders from across this diverse sector, including academia, civil society and other networks. Only together, and with a shared vision on aquaculture development, will the sector reach its fullest potential. FAO Members also have centres of excellence for aquaculture in Asia and have indicated opportunities for sharing knowledge and providing capacity building under cooperation programmes.

Sustainable management of marine and inland capture fisheries

23. FAO started publishing its regular analysis of the state of global fish stocks in 1971 and has always included an updated summary analysis in its biennial FAO flagship publication *The State of World Fisheries and Aquaculture*. The global fisheries sector in 2022 is appreciably different compared to that of the 1970s, as are the dominant fish stocks and their location and modes of exploitation. For example, Asia and the Pacific region's tuna fisheries have changed dramatically with the introduction of industrial purse seiners, and the fisheries of South and Southeast Asia have increasingly targeted smaller inshore pelagic fisheries, as catches from demersal trawl fishery stocks have declined.

24. The effective management of fisheries is a fundamental objective of the Blue Transformation Roadmap, underpinning national commitment to the SDGs and securing the livelihoods of millions of people in Asia and the Pacific region.

25. FAO's Blue Transformation Roadmap establishes three key global outcomes for sustainable fisheries:

a. 100 percent of fisheries are under effective management;
b. all illegal, unreported and unregulated (IUU) activities are phased out; and
c. full and productive employment and decent work in the fisheries sector are achieved for all women and men by 2030.

26. To achieve these outcomes, governments, with support from FAO and other partners, must establish effective governance, policies and institutions to enable sustainable management, enable

equitable access to resources and services for fishers, apply effective fisheries management systems in all fisheries and achieve efficient, safe and profitable fishing fleets.

27. Where sustainable fishery management is implemented, fish stocks recover and capture fisheries provide increasingly secure social, environmental and economic benefits.[11] Moreover, the growing evidence of the projected impacts of climate change and other hazards on aquatic ecosystems calls for the explicit consideration of climate stressors and disaster risks in fisheries management, integrating climate change adaptation and disaster risk reduction as well as establishing a better connection with natural resources management or development actions. For this purpose, shifting to flexible and adaptive management approaches would allow for continuous adjustments as climate impacts are detected.

28. Countries that are highly dependent upon marine capture tuna fisheries as contributors to their national economies or as a mainstay for nutrition and livelihoods are seeking to strengthen sustainability and resilience of these fisheries and to access higher-value markets through improved product quality, value addition and certification schemes. A number of countries in the Asian region have highly developed, but generally over-exploited, marine fishery sectors and are seeking ways to manage overcapacity, reduce overfishing, rebuild stocks and reduce IUU fishing activities. This requires more effective stock assessment combined with effective adaptive management. The marine capture tuna fisheries in the Pacific region are currently assessed to be sustainable, with several conservation management measures in place. Countries that generally manage their fisheries efficiently and with climate considerations may not require significant transformation, and have much to offer in terms of showcasing effective management approaches and providing leadership in international dialogues on fishery governance.

29. The adoption of the SDGs and "fish stock sustainability" SDG Indicator 14.4.1 (*Proportion of marine fish stocks within biologically sustainable levels*) has also created a requirement for countries to report on their marine fish stocks to evaluate progress on this indicator. FAO is working on updating and improving its methodology to assess global fish stocks and has piloted this in Major Fishing Area 57.[12] An FAO regional workshop[13] for South and Southeast Asia reviewed ongoing stock assessment programmes and concluded that there has been a quiet revitalization of the importance of marine fishery stock assessments and their application to fishery management. It found that there is a need to raise awareness about the central importance of stock assessment to fishery management and governance, together with effective communication of stock assessment information. Capacity building in improved stock assessment methods and analysis are a key part of this.

30. The 2009 FAO Agreement on Port State Measures to Prevent, Deter and Eliminate IUU Fishing (known as the PSMA) and the FAO Global Capacity Development Programme to support the implementation of the PSMA have played a pivotal role in fighting IUU fishing. The percentage of coastal states in Asia and the Pacific region where the PSMA is in force is 51 percent, while the percentage of total states where the Agreement is in force is 45 percent. FAO continues to support bilateral, subregional, regional and global efforts to increase the number of Parties, especially major port states and flag states. FAO has provided technical assistance to 11 countries in Asia and the Pacific region in strengthening policies and legislative frameworks, reviewing monitoring, control and surveillance systems, and reinforcing interagency coordination mechanisms. The PSMA Regional Coordination Meetings for Asia and Pacific region in 2022 provided opportunities to take stock of the PSMA implementation status and discuss strategies to improve the effectiveness of the PSMA in the two regions. These meetings served as platforms for sharing best practices, addressing existing challenges, and fostering cooperation among Parties and non-Parties to the PSMA. The Fourth Meeting of the Parties to the PSMA, held in May 2023 in Bali, Indonesia, successfully endorsed the

[11] FAO. 2022. *The State of World Fisheries and Aquaculture 2022*. *Towards Blue Transformation*. Rome, FAO. https://doi.org/10.4060/cc0461en

[12] FAO. 2023. FAO Major fishing Areas. https://www.fao.org/fishery/en/area/57/en

[13] FAO. 2023. *The status of marine fishery stock assessments in the Asian region and the potential for a network of practitioners*.

"Bali Strategy" to improve the effectiveness of the PSMA by extending vessel inspections, exchanging global information and improving the capacity of developing states to implement the PSMA.

31. SSF in Asia and the Pacific region has an enormous role to play in ensuring food security and livelihoods, given the millions of people involved in SSF. Next year, FAO and its partners will celebrate the ten-year anniversary of the adoption of the FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Reduction.[14] This anniversary provides a new opportunity to implement the guidelines and recommendations, based on the regional priorities identified during the 2022 International Year of Artisanal Fisheries and Aquaculture. The International Year concluded with concrete regional recommendations, including a call to incorporate SSF into national fishery information systems and policies. It also noted the need to involve fishers in management decisions and to develop management plans that are sensitive to their use of marine and coastal spaces, and encouraged the view of SSF as solutions rather than impediments to sustainable management. Supporting these recommendations requires a commitment to increased investment, evidence-based research, an enabling policy environment, more capable involvement of fishers, and climate change adaptation and mitigation measures that consider small scale fishers. These measures should be accompanied by social protection for all people engaged in SSF, along with the promotion of decent work and safe working environments.

Upgrading and enhancing more efficient, inclusive, low-carbon and resilient aquatic food value chains in Asia and the Pacific region

32. Many species of fish and aquaculture products are traded beyond national borders. In 2021, the global trade value of aquatic food products was comparable to that of all terrestrial meats. Total trade of aquatic products (aquatic animals and algae) reached a new record high of USD 177 billion in 2021 after dropping consecutively in 2019 and 2020. Asia and the Pacific region accounted for 37 percent of the value of global trade, collectively exporting USD 56 billion and importing USD 49 billion worth of aquatic products.

33. Aquatic food value chains include the full range of activities and stakeholders engaged in producing, transforming and delivering products to consumers. Upgrading to more efficient, inclusive, low-emission and resilient value chains adds or creates greater value for aquatic foods, unlocking more wealth and food from aquatic food systems, supporting resilient livelihoods, and contributing to poverty reduction. Efficient and inclusive value chains may also reduce fish loss and waste, improve access to markets, provide safer and more nutritious food, improve distribution of and access to aquatic foods, enhance transparency, and support technological innovation in the sector.

34. FAO's Blue Transformation Roadmap establishes four key global outcomes for value chains:

a. global per capita fish consumption increases significantly, especially across the Global South;
b. fish loss and waste is reduced by half by 2030;
c. current and potential exporters in developing countries can comply fully with import market requirements of major import countries; and
d. all forms of discrimination and abuse against women throughout the value chain are phased out.

35. To achieve these outcomes, improvements will be required in understanding challenges and opportunities in a variety of post-harvest areas, including efficient and resilient value chains that increase profitability and reduce fish loss and waste, transparent and inclusive value chains, more effective access to international markets, increased consumption of sustainable aquatic foods in areas with low food and nutrition security and improved access to healthy and safe aquatic food.

36. The aquaculture and capture fisheries supply chain will remain complex, considering that processing can be outsourced to other countries with lower labour and production costs. Aquatic products often cross national borders numerous times before final consumption, and a major obstacle for aquatic product exports is the wide variety of inspection systems and consumer safety standards in

[14] FAO. 2015. *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication*. Rome. https://www.fao.org/3/i4356en/i4356en.pdf

importing countries. Many food items are rejected, detained or destroyed because exporters are not fully aware of the import controls [regulations]. FAO has publicly analysed import notifications from the top importing countries since 2016, available on FishStatJ[15] and FAO GLOBEFISH,[16] to improve transparency and disseminate information and food safety regulations.[17] To support Members' compliance with international regulations and achieve smooth market access, FAO has also provided ongoing capacity-building initiatives in food safety and quality for aquatic products. The uptake of novel technologies to improve post-harvest processes and reduce environmental impacts as well as fish loss and waste along the value chain, and capacity-building to improve aquatic biosecurity, assess disease burden and prevent the development of antimicrobial resistance in aquatic food systems, will further strengthen the environmental sustainability of production activities.

37. In Asia and the Pacific region, the myriad of trade agreements between countries can enhance potential trade opportunities involving fisheries and aquaculture products and boost export competitiveness. In this regard, FAO is analysing the development of a database of fisheries and aquaculture products to enhance information dissemination, transparency, compliance, and market access involving preferential trade agreements, as well as to increase private sector awareness, especially among small-scale producers and exporters.

38. New international instruments, such as the 2022 World Trade Organization Agreement on Fisheries Subsidies[18] and the 2023 Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction,[19] are among recent significant developments that may have an impact on international trade.

39. There is an increasing business opportunity for using aquatic food by-products, as processing fish typically generates nearly 50 percent by-products. These can be turned into food, fish leather, silage, fishmeal, vitamins, biochemical extracts and isinglass. In addition, there is a growing demand for nutrient-rich and inexpensive foods derived from particular fish parts and by-products. To reduce fish loss and waste, FAO has programmes and tools for determining the viability of alternative uses for fish waste.

40. SSF and aquaculture also play an important role in the aquatic food value chains in Asia and the Pacific region. Promotion of resilient, efficient and inclusive processes for value addition of fisheries and aquaculture products is needed to increase the economic viability, resilience and environmental and social sustainability of value chain activities of small-scale actors. From a social sustainability perspective, priority should be given to support more equitable access to the benefits of aquatic value chains, access that combats discrimination through increased participation and inclusivity. Improved access to markets at all levels, crucial to those involved in SSF and aquaculture, is addressed in the Blue Transformation Roadmap by promoting increased availability of data and information on trade and markets and improved access to market information along the value chain, as well as by facilitating compliance with instruments addressing post-harvest issues or trade. Integration of climate change adaptation and disaster risk reduction, especially nature-positive measures, will prevent loss and damage throughout the aquatic food value chain, protect socioeconomic gains and foster environmental sustainability.

41. Aquatic foods are high in critical vitamins and minerals, as well as unique sources of important omega-3, eicosapentaenoic and docosahexaenoic acids, which are important for nervous system function. Aquatic foods are one of the few naturally occurring sources of iodine, iron, and zinc. Unfortunately, there is still a gap between fisheries and public health and nutrition policies when compared to other agricultural commodities. Strengthening public health nutrition policies, such as food-based dietary guidelines, can promote the role of aquatic foods for healthy diets. Moreover, the

[15] https://www.fao.org/fishery/en/statistics/software/fishstatj
[16] https://www.fao.org/in-action/globefish/import-notifications/en/
[17] https://www.fao.org/in-action/globefish/countries/food-safety-regulation-for-fishery-and-aquaculture-products/en/
[18] docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/MIN22/33.pdf
[19] https://documents-dds-ny.un.org/doc/UNDOC/LTD/N23/177/28/PDF/N2317728.pdf

promotion of aquatic foods is a critical part of the climate solutions to supply low-carbon and high-quality nutrition to address the food demands of the growing population. The promotion of aquatic foods could also be part of a broader promotion of sustainable and healthy diets and an integrated approach to building resilience for all under initiatives such as One Health.

42. Transformative actions for climate adaptation that are implemented early and along the entire value chain can minimize negative impacts as well as make best use of emerging opportunities. Mitigation opportunities also exist in fisheries and aquaculture post-harvest practices and include increasing energy use efficiency in fish processing, improving fuel and energy use efficiency in handling and cold storage, and consuming locally to reduce greenhouse gases during transport. Upgraded value chains are critical for the long-term social, economic and environmental viability of aquatic food systems.

Blue Transformation in Asia and the Pacific region

43. The areas identified above exemplify needs and priorities for Asia and the Pacific region, whereas specific solutions need to be contextual, e.g. country- or subregional-specific. The Asia-Pacific National Pathways for Food System Transformation emphasize healthy diets and responsible consumption as drivers of transformation toward low-emission and resilient agrifood systems. Aquatic food systems hold considerable potential to significantly contribute to this. FAO, as a global UN technical agency, is well-positioned to lead and support actions needed through the implementation of the Blue Transformation Roadmap by:

a. promoting the Blue Transformation Roadmap in regional initiatives;

b. enhancing access to blue and climate finance for resilience, innovation and transformation of aquatic food systems; and

c. supporting regional capacity-building programmes built around one or more areas of the following pillars:

    i. providing guidance on national policy direction to stimulate greater innovation and investment in aquaculture transformation and promotion of aqua-business in the context of climate change;

    ii. improving data for fishery management decision-making (e.g. stock assessment, zoning, conservation, economics, production, climate change impacts and projections), and increasing public access to this information to support integration and alignment of adaptive fishery management with other conservation initiatives;

    iii. strengthening and investing in SSF and aquaculture policies supported by national plans of action in alignment with the SSF Guidelines; and

    iv. developing public health nutrition policies such as food-based dietary guidelines to promote the role of aquatic foods in healthy diets and incorporating these into other systems.

44. Partnerships to deliver capacity building and advisory support with Member Nations in these key areas will contribute to the achievement of the SDGs and our common vision for Blue Transformation of aquatic food systems.