



Strategic plan 2025+

Transforming aquaculture for resilient rural communities

Network of Aquaculture Centres in Asia-Pacific





Asian Aquaculture in Perspective

Vital to food security

Wild fisheries are now fully exploited. By 2050 the world will need another 36 million tonnes of fish just to maintain per capita consumption at current levels.

This demand can only be met through responsible aquaculture. In 2022, aquaculture accounted for 57 percent of global food fish for human consumption, and this contribution is growing.

Fish are often the only affordable source of animal protein available to the rural poor. Aquaculture plays an important role in human health and nutrition by providing low-cost animal protein and essential nutrients to nutritionally challenged people in the developing world.

Small-scale farms

Small-scale family-operated farms are a significant feature of Asian aquaculture. The sector is a major source of income and employment for rural communities. In 2022, about 20.9 million people were directly employed in the Asian region.

The small-scale nature of the sector poses special challenges in confronting issues such as globalisation, international trade, maintaining environmental integrity and the looming threat of climate change.

Aquaculture transformation

NACA's vision is to transform Asian aquaculture industries into more efficient, inclusive, resilient, and sustainable food systems through innovation, investment and partnerships.

► About NACA

A network of research centres

NACA is an intergovernmental organisation that promotes rural development through sustainable aquaculture and aquatic resources management. NACA seeks to improve the livelihoods of rural people, reduce poverty, and improve food security. The ultimate beneficiaries of NACA are farmers and rural communities.

Collaboration in development

NACA implements research, policy, and development assistance projects in partnership with scientific institutions, governments, development agencies, farmer associations and other organisations. NACA supports technical exchange, capacity building, institutional strengthening and policies for sustainable aquaculture development and aquatic resource management.

Organisational structure

The core of NACA is a collaborative network of research centres. Participating centres share their expertise and facilities for mutual benefit and to maximise return on limited R&D resources. The network is underpinned by five Regional Lead Centres, which serve as support hubs.



Employment for rural communities: Giant prawns harvested from a community pond, Bangladesh.

NACA policy is determined by the Governing Council, consisting of member government representatives. A Technical Advisory Committee, consisting of independent experts, provides input to the strategic plan, which is implemented through collaboration with governments, donor agencies, farmer associations and NGOs.

Membership

Membership of NACA is via accession to the NACA Agreement, an international treaty. The agreement provides for associate membership by intergovernmental organisations and donor agencies.

“NACA is dedicated to enhancing food security, boosting livelihoods, and elevating the quality of life for rural communities.”

► Members and Centres

Member governments

Current member governments of NACA are:

- Australia
- Bangladesh
- Cambodia
- China
- Hong Kong SAR, China
- India
- Indonesia
- Islamic Republic of Iran
- Democratic People's Republic of Korea
- Kingdom of Saudi Arabia
- Lao People's Democratic Republic
- Malaysia
- Maldives
- Myanmar
- Nepal
- Pakistan
- Philippines
- Sri Lanka
- Thailand
- Viet Nam

Associate members

Associate members are:

- The Pacific Community
- Center on Integrated Rural Development for Asia and the Pacific

“With over thirty-five years of experience, NACA has demonstrated its effectiveness as a model for promoting sustainable rural development.”



33rd NACA Governing Council, New Delhi, India.

- Network of Aquaculture Centres in Central and Eastern Europe
- Asia-Pacific Association of Agricultural Research Institutions

Regional Lead Centres

Regional Lead Centres are institutions with advanced capabilities that support the network in key fields of endeavour:

- Freshwater Aquaculture Research and Development Center, Thailand
- Freshwater Fisheries Research Centre, China
- ICAR-Central Institute of Freshwater Aquaculture, India
- Iranian Fisheries Research Organization, Islamic Republic of Iran
- SEAFDEC Aquaculture Department, Philippines

► Key Achievements

Human resource development

NACA's Training Programme has played a key role building regional capacity in aquaculture development. Since the early 80s, more than 2,500 people have participated in NACA's training activities. Many alumni are now leaders and senior officials in governments, development agencies, academia, and industry.

Global policy development

NACA has been at the forefront of international aquaculture policy, convening milestone consultations on development such as the Global Conference on Aquaculture Millennium +20 and producing guidance on key transboundary issues, such as the International Principles for Sustainable Shrimp Aquaculture and the Technical Guidelines on the Responsible Movement of Live Aquatic Animals.

Health and biosecurity

NACA pioneered the development of an aquatic animal health network for the Asian region, drawing together governments and technical experts to share information on the detection, containment, and management of disease. The network pools technical expertise and laboratory facilities.

“NACA members collaborate and share technical knowledge, for the more rapid advancement of all.”

Better management practices

NACA has been instrumental in the development of guidelines that small-scale farmers can follow to improve crop outcomes and reduce environmental impact. Better management practices are available for shrimp, striped catfish, and culture-based fisheries.



NACA was awarded the Aziz-ul-Haq Rural Development Medal in 2023 by the Centre on Integrated Rural Development for Asia and the Pacific.

► Transforming Aquaculture in the Asia-Pacific

By 2050, an additional 36 million tonnes of fish products will be required to feed the growing world population.

This must be achieved without increasing environmental impact, and in the face of increasing competition for land, water, feed and other resources.

Vision to 2030

NACA and FAO have published a White Paper, developed through extensive consultations, that provides a vision for 2030 in which aquaculture in Asia and the Pacific region is transformed into more efficient, inclusive, resilient and sustainable aquatic food systems through innovation, investment and partnerships.

Transformed aquaculture harnesses the rich and diverse cultural foundations of aquaculture across the region and strengthens its contribution to world food security, improved nutrition, secure livelihoods, economic and social development and environmental recovery.

The White Paper provides five strategic goals for achieving this vision:

“NACA seeks to transform aquaculture into more efficient, inclusive, resilient, and sustainable food systems through innovation, investment, and collaboration.



The High Level Meeting provides a forum to stimulate innovation for aquaculture transformation.

- Improving food and nutrition security
- Reducing poverty and developing economies
- Better environments and ecosystems
- Greater resilience
- More inclusion

The White Paper was developed in consultation with the High Level Meeting on Aquaculture Transformation in Asia and the Pacific Region. The meeting provides a forum for policy makers, business leaders, development banks and investors to identify strategies to stimulate innovation and investment for aquaculture transformation.

► Strategic plan 2025+

Programmes

The mandate of NACA is addressed through three interlinked thematic work programmes that support sustainable aquaculture and aquatic resource management, policy development and inter-governmental cooperation in the region.

These are:

- Environment and Sustainability
- Health and Biosecurity
- Genetics and Biodiversity
- Food Security, Safety and Certification
- Emerging Global and Regional Issues

“NACA is a collaboration between member governments, research institutes, academia, industry and rural communities.”

Three additional cross-cutting programmes facilitate and support implementation of the thematic work programmes:

- Education and Training
- Information and Networking
- Governance and Policy

Implementation

The work plan is implemented through the development of collaborative projects and activities by partners in the network, addressing issues of common or regional interest.

Individual projects draw heavily on the personnel and facilities of participating centres. Projects are essentially implemented by the centres with the Secretariat acting as a coordinating body.

NACA also works in close cooperation with FAO, international donor agencies and other regional and international organisations in implementing the work plan.

Distributors and intermediaries board a van with fingerlings purchased at the Fish Seed Market of Jashore, Bangladesh.



► Environment and Sustainability

The programme aims to help aquaculture become a more efficient user of natural resources, both in terms of farm productivity and environmental efficiency.

The programme develops better management practices for major aquaculture farming systems, focussing on practical interventions that can be directly achieved by small-scale farmers in a developing country context.

The programme also assists small-scale farmers to adapt to the changing trade and food safety environment. Cluster-based management approaches and formation of farmer societies are promoted as means to implement better management practices.

Key activities

- Development of better management practices for key production systems
- Organising small-scale farmers into associations to facilitate cluster-based approaches to extension
- Hosting the International Artemia Aquaculture Consortium

“Better management practices lower costs, reduce resource use, and improve health, growth, and environmental performance.”



Aquaculture needs to become more efficient inclusive, resilient and sustainable through innovation, investment and partnerships.

- Development of strategic policy frameworks to guide sustainable intensification of aquaculture
- Improving resource-use efficiency through approaches such as culture-based fisheries and multiple use of water
- Documentation and improved management of aquatic genetic resources
- Facilitating responsible exchange of germplasm, safe propagation and access-benefit sharing
- Applying conservation aquaculture models to support diversification, fishery enhancement and in-situ conservation of indigenous fish species

► Health and Biosecurity

The Health and Biosecurity Programme assists members to reduce the risks of aquatic animal disease impacting the livelihoods of farmers, national economies, trade, environment and human health by:

- Improving regional cooperation in aquatic animal health and welfare
- Developing and implementing national strategies on aquatic animal health
- Improving surveillance, reporting and response to disease emergencies
- Promoting harmonisation of diagnostic procedures and risk assessment
- Widespread promotion of better aquatic animal health management practices at the farm level
- Development of policy on the use of anti-microbial substances in aquaculture and surveillance and reporting programmes for anti-microbial resistance

Key activities

- Coordinating the Asia Regional Advisory Group on Aquatic Animal Health and advocacy of regional issues in global standard setting bodies such as OIE



NACA coordinates the Quarterly Aquatic Animal Disease Report for Asia-Pacific in partnership with FAO and WOA. H.

- Coordinating a three tier shared regional resource base in aquatic animal health
- Development of farm-level health management tools for key commodities
- Supporting regional disease surveillance and reporting
- Strengthening aquatic animal health capacity and biosecurity in the region
- Facilitating harmonisation in disease diagnostic techniques
- Developing resource material in support of disease diagnosis and surveillance

“Health and biosecurity are cross-border challenges that impact everyone, demanding coordinated action from all stakeholders.”

► Genetics and Biodiversity

The Genetics and Biodiversity Programme supports member states to improve scientific knowledge of aquatic genetic resources and to guide strategic planning in their management. The programme addresses both the conservation aspects of genetic resources and their responsible usage in aquaculture to minimise impacts on biodiversity and wild strains and to assist members to meet their obligations under international treaties.

The programme promotes international linkages between member states, capacity building, research programs to develop improved strains of finfish and shellfish, genetic characterisation of existing strains, adoption of new genetic tools and technologies and consortia regional programmes to address common issues, species and strains of value from conservation and/or aquaculture perspectives.

Key activities

- Building capacity in aquatic genetic resource management and application of new molecular technologies, tools and strategies



Genetically informed breeding programmes support wild populations of endangered species such as the golden mahseer, *Tor putitora*.

- Characterising aquatic genetic resources to discover species, stocks and valuable genomic resources
- Facilitating national and regional programs for domestication, genetic improvement and conservation
- Applying conservation aquaculture models to support diversification, fishery enhancement and in-situ conservation of indigenous fish species
- Facilitating responsible exchange of germplasm, safe propagation and access-benefit sharing

“Management of genetic resources is crucial for developing countries that rely heavily on their natural resource base.”

► Food Security, Safety and Certification

Food safety is a key concern for international trade in fish products. The constantly changing regulatory environment and safety requirements of importing countries pose a special challenge to small-scale aquaculture producers.

The programme assists members to assure the safety and quality of aquaculture products through the adoption of science-based better management practices. Policy issues concerning aquaculture certification and activities in market access are also addressed.

The programme focuses on assisting small-scale farmers to adapt to the changing trade and safety environment. Cluster-based management approaches and formation of farmer societies are promoted as practical mechanisms for implementation of better management practices.



“Adoption of better management practices can significantly improve food safety and quality, and provide a basis for product certification.”

Key activities

- Evaluation of commodity-specific better management practices for meeting domestic and international food safety standards
- Facilitating establishment of national residue testing and monitoring programmes and sharing of information amongst member countries
- Improving access to markets by small-scale farmers
- Improving market development for low-cost aquaculture commodities
- Address biosecurity and associated human health issues regarding the consumption of fish and processed products
- Development of farmer groups and cluster-based certification concepts and methodologies

NACA is working to help address food safety, quality and certification through the entire market chain from hatchery to consumer.

► Emerging Global and Regional Issues

The Emerging Global Issues Programme provides policy guidance on key strategic and emerging issues such as climate change, energy efficiency and alternatives to use of fish meal in aquaculture feeds.

The programme endeavours to bring to public domain the positive aspects of aquaculture as a significant contributor to food security and the livelihoods of rural communities, and actively promotes south-south cooperation.

Key activities

- Enhancing the resilience and self-reliance of rural communities
- Climate change mitigation through reduction of greenhouse gas emissions and local food production initiatives

“NACA offers a swift and flexible platform for governments to achieve consensus on emerging issues.”

- Evaluating the vulnerabilities of aquaculture systems to climate change and the development of adaptive measures
- Strengthening adaptive capacities of small-scale resource-poor farmers to the impacts of climate change
- Development of policy guidance and projects on emerging issues of regional interest
- Contribute to the global dialogue on use of fish meal and oil in animal feeds and resource usage in the reduction industry
- Providing a regional platform for members to develop common policies and strategies to address emerging global issues
- Playing a catalytic role in south-south cooperation in aquaculture development



Climate change will affect aquaculture systems world wide. NACA supports research to help farming communities mitigate, prepare for and adapt to changes.

► Education and Training

The Education and Training Programme assists capacity building among NACA members through the exchange and sharing of knowledge and skills between members.

Activities may take the form of training courses, study visits and personnel exchange.

The programme also supports the training components of the other thematic programmes and serves as an outreach arm of NACA.

Regular training activities include three to four courses each year on various topics of regional priority in aquaculture development, such as:

- Broodstock Management in Aquaculture
- Aquaculture Business Management
- Marine Finfish Seed Production
- Aquaculture Governance and Planning
- Management for Sustainable Aquaculture Development.

NACA played a key role in developing hatchery technology for small-scale marine finfish aquaculture, and in training farmers throughout the region.

“Asian aquaculture has evolved from its early foundations to achieve global leadership in aquaculture technology.”

Key activities

- Identifying training needs for aquaculture development in NACA members
- Identifying and organising relevant expertise and capacities to meet the training needs
- Developing training modules and materials
- Facilitating routine education and training activities of NACA
- Facilitating and coordinating exchange programmes among members and with other regions



► Governance and Policy

The Governance and Policy Programme supports the institutional and regulatory frameworks that underpin aquaculture development among NACA members.

The programme focuses on enhancing governance structures, policy formulation on emerging and strategic issues, and implementation practices to ensure effective aquaculture management.

The aim of the programme is to ensure that governance and policy frameworks are responsive to the needs of the aquaculture sector, promote sustainable development, meet the needs of rural communities, and are inclusive of women, youth, the elderly, and economically disadvantaged and marginalised groups.

Key activities

- Assessing governance needs: Identifying gaps and opportunities in governance and policy frameworks.
- Policy development support: Providing technical assistance and expertise to support the creation and implementation of effective policies and regulations.
- Capacity building: Organising workshops, seminars, and policy dialogues to build the capacity of policymakers and stakeholders in governance and regulatory practices.
- Sharing best practices: Facilitating the exchange of best practices and experiences among members to improve governance and policy approaches.
- Regional collaboration: Coordinating with member governments, regional and international organisations to align policies and strategies with global standards and trends.



Governance needs to work for everyone, including small-holders, the economically disadvantaged and marginalised people.

“Effective governance and policy are foundational for breaking down barriers that result in exclusion, marginalisation and perpetuate the cycle of poverty.”

► Information and Networking

The Information and Networking Programme extends the outputs of the NACA work programmes to the aquaculture community at large and provides a platform for sharing information and experience.

The major focus of the programme is on electronic publishing and extension. All NACA news and publications are made available for free download via the NACA website. The programme also assists partner organisations to build their own capacity in electronic publishing.

Key activities

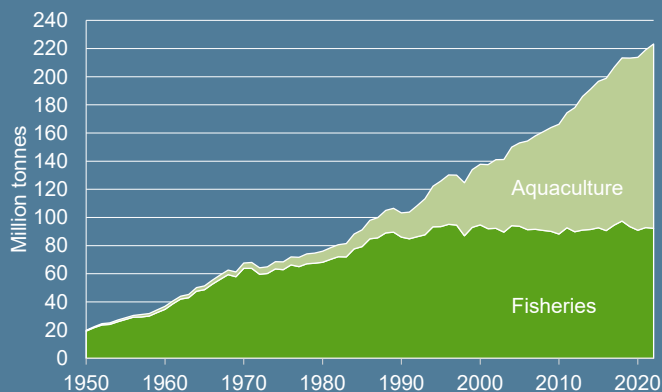
- Supporting expertise-oriented networks and sharing of expertise between individuals, institutions and member states
- Strengthening cooperation and coordination among member government agencies, external partners and the private sector
- Building the capacity of partner organisations in website management and online publishing

- “Smart farming” and the application of technology in aquaculture and development
- Producing audio and video podcasts of technical presentations given at regional aquaculture meetings
- Production of NACA’s serial publications



“Visit <https://enaca.org> for the latest regional aquaculture news, publications and projects.”

Relative contributions of fisheries and aquaculture to global fish production



Global aquaculture production volume by region 2022 (percent share)



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