GFST CONCLAVE SERIES:

DeepTech/ GovTech Innovation Conclave

Shaping the next era of governance

Organised by GFST

In Collaboration with

GFST & GOVERNMENT OF ANDHRA PRADESH

AQUACULTURE INNOVATION TECH 2.0

DRIVING 30% GROWTH WITH FOCUS ON SHRIMP, PRAWN, AND FRESHWATER FISH

17-18 FEBRUARY 2025, FORTUNE MURALI PARK, VIJAYAWADA

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CHIEF PATRON'S MESSAGE

Shaping Andhra Pradesh into a Blue Economy Leader through DeepTech, AI, IoT, Aquaculture 2.0

Andhra Pradesh: The Next Big Wave in India's Blue Economy

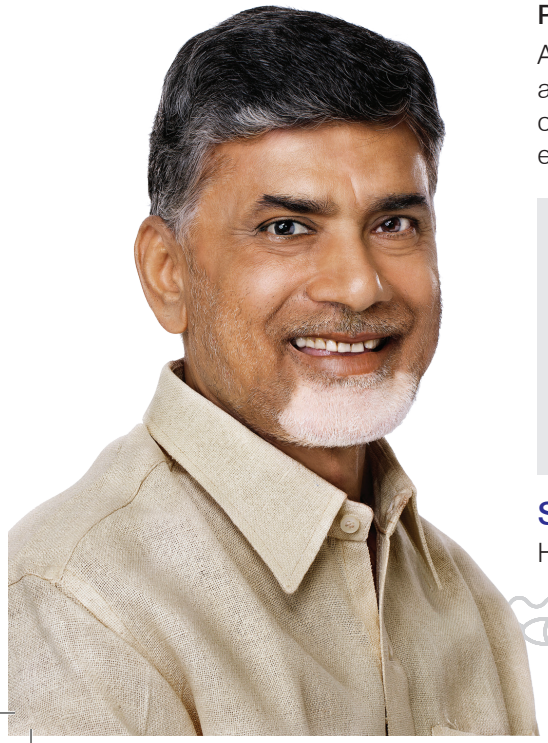
Poised to become a global leader in aquaculture, Andhra Pradesh is setting new benchmarks in sustainability and innovation. With shrimp and fish as clean, healthy protein sources, the state is making them more accessible while uplifting coastal communities often vulnerable to natural disasters. Leveraging a 1053 km coastline, abundant water resources, and the transformative P4 model, Andhra Pradesh is on a mission to solidify its position as a key driver of inland fish production, shrimp farming, and seafood exports, creating a prosperous and inclusive future for its fishing communities.

Aquaculture 2.0: Paving the Way for 30% CAGR 2024-29

Through the visionary Pradhan Mantri Matsya Sampada Yojana, the ₹20,050 crore Aquaculture 2.0 initiative will double aquaculture productivity, boost exports to ₹1 lakh crore, and generate 55 lakh jobs by 2029. The state will play a pivotal role in this transformation, focusing on climate-resilient practices, sustainable coastal aquaculture, and advanced mariculture techniques to lead India's blue economy revolution.

DeepTech as a Catalyst for Change

Andhra Pradesh will harness cutting-edge technologies like IoT-enabled sensors, drones, and AI-powered tools to revolutionize aquaculture practices. These innovations will optimize resource management, improve productivity, and elevate the state's aquaculture sector to global standards, ensuring higher incomes and better livelihoods for farmers.



P4 Model: Building a Sustainable Tomorrow

Andhra Pradesh will adopt the P4 model—Public-Private-People Partnership—as a cornerstone for growth. This approach will drive policy innovation, attract private investments, and empower local communities to take ownership of development. Investments in infrastructure such as brood banks, processing units, and cold storage facilities will ensure the sector's long-term resilience and inclusivity.

"As the Chief Patron of GFST, I envision it as a hub for forward-thinking ideas, transformative collaborations, and groundbreaking DeepTech-driven initiatives. Together, we will harness the power of advanced technologies to shape the future of aquaculture, driving sustainability and prosperity for Andhra Pradesh and India's fisheries sector."

Sri Nara Chandrababu Naidu
Hon'ble Chief Minister of Andhra Pradesh

SRI KINJARAPU ATCHANNAIDU

Hon'ble Minister for Agriculture,
Co-operation, Marketing, AHDD & Fisheries
Government of Andhra Pradesh

Andhra Pradesh:
A Leader in Fisheries and Aquaculture

Andhra Pradesh has firmly established itself as India's fisheries hub, contributing 29.1% to national production. As the top producer of cultured shrimp and aquaculture products and the second-largest in marine capture fish, the state plays a crucial role in the seafood industry. By December 2024, fish production reached 41.38 lakh metric tons, supported by 2.26 lakh hectares of aquaculture land and a 1027.58 km coastline. The state's shrimp exports to the US and Europe drive its seafood dominance, contributing 32.089% of India's total seafood exports, valued at Rs. 19,420 crores in 2023-24.

To sustain this growth, the PMMSY scheme, with an investment of Rs. 20,050 crores, is strengthening infrastructure, technology, and fish production. Andhra Pradesh has secured Rs. 753 crores in central funding, fueling a Blue Revolution. The PM-MKSSY sub-scheme (Rs. 6,000 crores) further enhances value chains, market access, and insurance support for fishermen and vendors.

Looking ahead, the state is embracing AI and DeepTech to modernize aquaculture, boosting productivity and sustainability. The P4 Model (Public-Private-People Partnership) is set to drive innovation in artificial reefs, seaweed farming, and deep-sea fishing, fostering investment and community empowerment. With a focus on research and development, Andhra Pradesh continues to support startups and institutions, ensuring long-term progress in fisheries and agriculture.

SRI ANAM VENKATA RAMANA REDDY

Co-Vice Chairman
AP State Aquaculture Development Authority

Andhra Pradesh:
Leading Fisheries with diversification, financial reforms and Global Market Expansion.

Andhra Pradesh, the Fish Bowl of India, leads in fish and shrimp production, contributing 60% of India's shrimp output and Rs.19,420 crores in seafood exports. To sustain this growth, strategic interventions are crucial.

Diversifying aquaculture beyond a few species will stabilize prices and enhance farmer incomes. Strengthening hatchery management with improved broodstock selection and breeding techniques will ensure high-quality fish seed, boosting productivity.

To reduce costs, developing affordable, high-nutrition fish feed using locally available ingredients can lower dependence on expensive imports. Real-time disease monitoring systems and preventive healthcare programs will minimize losses, while comprehensive insurance coverage can safeguard farmers against crop failures.

A cluster-based approach in farming, harvesting, and marketing will increase farmers' bargaining power, while training programs on Good Management Practices and ecosystem-based aquaculture will enhance sustainability. Adopting innovative technologies will further modernize the sector, ensuring long-term growth and resilience.

GFST - INNOVATING THROUGH DEEPTECH/ GOVTECH - AQUACULTURE TECH 2.0

ABOUT GFST

PLATFORM FOR KNOWLEDGE SHARING AND INCLUSIVE GROWTH THROUGH EMERGING TECHNOLOGIES

Global Forum for Sustainable Transformation (GFST) is an apolitical, not-for-profit think tank and policy advisory group, registered as a Section 8 company under the Indian Companies Act for research in strategic sectors critical for the transformation of India as a global leader. GFST is a platform for knowledge sharing and enterprise promotion for sustainable transformation of economies and communities for well-being and happiness. Through rigorous research, expert insights, and strategic initiatives, GFST aims to bridge the gap between policy and practice, promoting sustainable development, resilience, and inclusive growth.

S.P. Tucker, IAS (Retd.), Vice Chairman & Director

INNOVATION & GROWTH - AQUACULTURE 1.0 & 2.0

During my tenure as Chief Secretary, Andhra Pradesh's aquaculture sector grew from ₹18,573 crore to ₹67,885 crore, driven by budget and policy reforms, public-private partnerships, and governance streamlining.

At GFST, we aim to replicate and amplify the remarkable growth trajectory by achieving 30% growth duly leveraging innovations such as precision farming, smart monitoring, and optimized processing and using cutting-edge technologies like AI, ML, IoT, Blockchain and drones. In collaboration with the Govt of Andhra Pradesh, national institutes, and industry leaders, we are crafting a 5-year action plan, ensuring sustainable practices and positioning Andhra Pradesh as a global leader in aquaculture excellence.

Cherukuri Kutumba Rao, Director

POSITIONING AP AS A GLOBAL LEADER IN AQUACULTURE

The upcoming Conclave is a transformative opportunity to drive innovation in Fisheries, Aquaculture, and allied sectors.

We are setting the stage to harness cutting-edge global technologies like blockchain for traceability and AI for disease prevention in aquaculture.

By focusing on export-oriented species and high-value processing, GFST in collaboration with Government of Andhra Pradesh aims to position Andhra Pradesh as a global leader in the Blue Economy, driving sustainable development and inclusive growth.

Sanjay Gupta, IFS (Retd.), CEO

TECH-DRIVEN TRANSFORMATION

The Conclave is not just an event—it is a movement toward shaping Andhra Pradesh's future as a global Fisheries and Aquaculture hub.

With a focus on advanced aquaculture technologies, smart aquafarming, and export-oriented strategies, we are building a resilient ecosystem that aligns with Global Sustainability goals.

This initiative underscores our vision to transform Andhra Pradesh into a beacon of innovation in Fisheries, redefining its global footprint.

SRI K.VIJAYANAND, IAS

Chief Secretary to Government
Government of Andhra Pradesh

Andhra Pradesh:
Pioneering the Future of Smart & Sustainable Fisheries

Andhra Pradesh has long been a torchbearer in fisheries and aquaculture, setting national benchmarks in innovation, sustainability, and production excellence. With a rich coastline, vast inland water resources, and a progressive policy framework, the State has built a thriving ecosystem that not only supports India's seafood industry but also drives global exports.

As we usher in a new era of tech-driven aquaculture, Andhra Pradesh is embracing Artificial Intelligence, Machine Learning, IoT, and Blockchain to revolutionize real-time disease monitoring, water quality optimization, and supply chain transparency. These advancements will empower farmers, investors, and industry stakeholders, making aquaculture more resilient, efficient, and globally competitive.

At the heart of this transformation is the P4 Model (Public-Private-People Partnership), fostering investments in deep-sea fishing, artificial reefs, and sustainable aquaculture practices. With a firm commitment to technological excellence, environmental stewardship, and economic growth, Andhra Pradesh is redefining the future of fisheries—where innovation meets sustainability, and progress uplifts communities.

SRI B. RAJA SEKHAR, IAS (RETD)

Spl Chief Secretary to Government, AHDD & F Department
Government of Andhra Pradesh

Andhra Pradesh: Leading India's Blue Economy

Andhra Pradesh remains the backbone of India's fisheries and aquaculture sector, leveraging its vast coastline, inland water resources, and advanced infrastructure. The state's progressive policies and cutting-edge technology ensure sustainable growth, benefiting both the economy and fishing communities.

Strategic Growth & Global Expansion

To boost productivity, the state is enhancing hatcheries, improving fish seed quality, and diversifying species. Strengthening fisher cooperatives through financial aid, modernized infrastructure, and social security measures ensures economic stability. Expanding processing hubs, e-commerce integration, and global exports aims to increase fish production by 15% and drive exports to Rs.1 lakh crore by 2029.

Sustainability & Smart Fisheries

AI, IoT, and blockchain are revolutionizing disease prediction, water quality monitoring, and precision farming. Climate-resilient aquaculture, bio-secure hatcheries, and renewable energy adoption ensure long-term sustainability.

Collaborative Growth & Innovation

Public-private partnerships drive policy reforms, infrastructure modernization, and technology-driven solutions, positioning Andhra Pradesh as a global leader in fisheries excellence. By integrating advanced research and sustainable practices, the state is shaping a resilient, future-ready sector that fosters economic growth and food security.

SRI RAMA SHANKAR NAIK, IAS (RETD)

Commissioner of Fisheries
Government of Andhra Pradesh

Andhra Pradesh: The Aqua Hub of India

Blessed with rich aquatic resources, Andhra Pradesh boasts a 1027.58 km coastline, vast inland water bodies, and thriving aquaculture zones. With 2.26 lakh hectares under aquaculture, including 1.17 lakh hectares for shrimp and specialized farms for seabass, Pompano, and mud crabs, the state rightfully earns the title "Aqua Hub of India."

Leadership in Fisheries & Sustainable Policies

Andhra Pradesh leads India in fish and prawn production, contributing 29.1% (51.06 LMT in 2022-23) with a GVA of Rs.68,344 crores. To ensure sustainability, the APSADA Act 2020 unifies aquaculture activities, while the Fish Feed and Aquaculture Seed Quality Control Acts safeguard farmers from unethical practices.

Innovations & Technology-Driven Growth

A statewide aqua resurvey is underway to designate new aqua zones, ensuring regulated expansion. Traceability systems with pond IDs and digital dashboards will enhance international export standards. Strict antibiotic regulations are enforced through statewide inspections.

Embracing autonomous systems, drones, remote sensing, and smart feeding devices, Andhra Pradesh is revolutionizing aquaculture to boost production, improve efficiency, and drive a future-ready fisheries sector.

Chapter 1 GFST Vision

Deep Tech & GovTech Transformation

- Hosted a GovTech conclave, leveraging AI/ML for healthcare insights.
- Developed a digital stack and ensured continuous impact through follow-ups.
- Following the Aquaculture Conclave, future conferences will focus on animal husbandry, urban AI, and logistics to drive technological advancements across sectors.

Aquaculture Innovation with AI & Data

- Conducted a 60,000-farmer survey to drive policy-making.
- Building AI/ML-powered dashboards for actionable insights.
- Collaborating on a 5-year action plan (2024-29) with the Fisheries Department.

Growth Trends & Future Targets

- Past Growth: 29.6% CAGR (2014-19), slowed to 8% CAGR (2019-24).
- Projected (2028-29):
  1. Moderate Growth (12% CAGR): GSVA ₹1.78 lakh crore.
  2. High Growth (29.6% CAGR): GSVA ₹3.69 lakh crore.

Production Goals (2028-29)

- Total Production: 111.27 LMT (18% CAGR).
- Key Segments:
  1. Inland Fish (50-55%) -> 60 LMT (15.2% CAGR).
  2. Prawn & Brackish Shrimp (35-40%) -> 49 LMT (23.5% CAGR).
  3. Marine Fish & Shrimp (10%) -> 10 LMT (10% CAGR).

Strategic Priorities

- Empowering stakeholders (farmers, exporters, aggregators).
- Tech integration: IoT, remote sensing, aerators, RAS.
- FinTech solutions: Insurance, financial inclusion, Better Insurance models
- Disease control, geotagging, and sustainability efforts.

Vision

- Achieve 30% growth in Andhra Pradesh's fisheries sector with technology-driven innovation and strategic investments.

GFST VISION

Next Gen Governance of Predictive AI in Aquaculture

01

DeepTech for Governance
5th & 6th Dec 2024

At GFST, we hosted a transformative DeepTech and GovTech Conclave that went beyond the traditional format. Collaborating closely with the health department, we developed a digital stack and utilized advanced AI/ML tools for actionable insights. Our support extended well beyond the event, with multiple follow-up meetings ensuring meaningful progress for the health sector.

02

NOW
Aquaculture Conclave:
A Hands-On Approach using Survey

Building on this success, we are now conducting an Aquaculture Conclave with proactive support for the fisheries department. The collaboration began with a rapid survey covering 60,000 farmers, gathering essential data to drive informed decision-making.

03

Aquaculture 2.0 - Data-Driven Insights

Leveraging our expertise in deep technology and AI/ML tools, we are analyzing this comprehensive dataset. This effort will be complemented by a dashboard designed to facilitate robust analysis, providing a foundation for impactful strategies and policies.

04

Aquaculture 2.0 -
Towards a 5-Year Action Plan: 2024-29

This is not just a brochure—by the time of the conference, a complete strategy document will be ready. We are already working closely with the Commissioner and Secretary of Fisheries Department, GoAP to support the creation of a 5-year action plan aimed at transformative growth in the sector.

GFST VISION

Achieving 30% growth through GovTech/ FinTech

GSVA Growth Trajectory: Fishing and Aquaculture

The sector achieved a robust CAGR of 29.6% (2014–2019), fuelled by infrastructure, technology, and policy reforms. Growth slowed to 8% CAGR (2019–2024), highlighting systemic challenges.

Projected Growth Scenarios (2028–29):

- Moderate Growth (@12% CAGR): GSVA to reach ₹1.78 lakh crore.
- Exponential Growth (@29.6% CAGR): GSVA could hit ₹3.69 lakh crore with strategic reforms and investments.

Production Targets: 2028–29

Aquaculture production is set to rise from 52.95 LMT (2023–24) to 111.27 LMT, achieving an 18% CAGR.

Key Contributors:

- Inland Fish (50–55%): Targeted 60 LMT at 15.2% CAGR.
- Freshwater Prawn & Brackish Shrimp (35–40%): Expected 49 LMT at 23.5% CAGR, driving exports.
- Marine Fish & Shrimp (10%): Estimated 10 LMT at 10% CAGR, ensuring steady growth.

- Empowering farmers, exporters, and aggregators
- Cutting-edge technologies
- Fintech solutions, insurance coverage
- Advanced disease control
- Solutions in Geotagging
- Expand local consumption
- To fuel a 30% growth in Andhra Pradesh's fisheries sector—where networking drives innovation and sustainability.

Chapter 2 The Andhra Advantage

How did Andhra take the lead in the aquaculture sector?

Policy and Budget Impact:

- Policy changes and increased budget allocation have accelerated aquaculture growth in Andhra Pradesh.
- 30% CAGR was achieved during 2014-19, indicating significant growth.

How does AP want to advance itself?

Technology-Driven Growth

- Aiming to achieve 30% CAGR again, with technology as the central driver of growth.
- Technology integration (IoT, Sensors, Remote Sensing, Aerators, Recirculating Aquaculture System) across the value chain ensures quality and reduces disease.
- Reducing 10% input costs and enhancing 20% productivity
- Geotagging and packaging

Infrastructure Support

- Andhra Pradesh boasts a strong aquaculture infrastructure with cold storage, feed mills, and processing plants which can harness technology to maximise its capacity.

THE ANDHRA ADVANTAGE

Driving Sustainable Aquaculture with Innovation, Technology, and Diversified Growth

1st in fish and shrimp production since 2015-16

76% shrimp production

29% fish and shrimp output

32% seafood export value **(Rs19,420Cr, 2023–24)**

Trades **34** lakh MT of fish

4th in marine fisheries

~9.15% to GVA

~25.3% to Agriculture GVA

1053 km coastline, driving the Blue Revolution

Supports **1.65** million livelihoods

Best Maritime State 2021 & 2023.

Ease of Doing Business and Sustainability: Online services and Aqua Zones promote streamlined and eco-friendly aquaculture.

Pioneering Technology Adoption: From drone-assisted stock estimation to IoT-enabled water quality monitoring, Andhra Pradesh is a global leader in innovation-driven aquaculture.

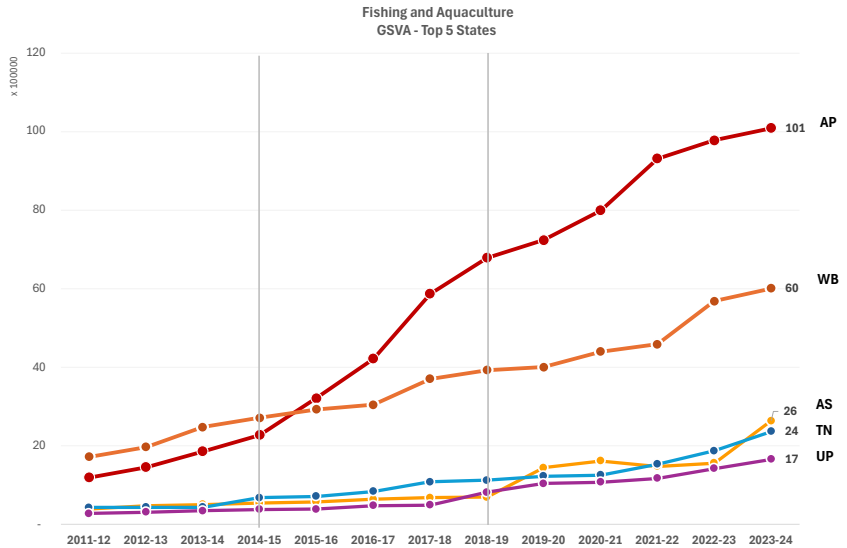
Sustainability Champions: Promoting seaweed cultivation, RAS, biofloc farming, and renewable energy use to ensure eco-friendly practices.

Infrastructure and Policy Support: Integrated Aqua Park and unique seed/feed Acts empower Andhra Pradesh's aquaculture.

Diversified Growth: Advancing Tilapia, Mud Crab, Softshell Crab, and Seabass farming for sustainable expansion.

THE ANDHRA ADVANTAGE

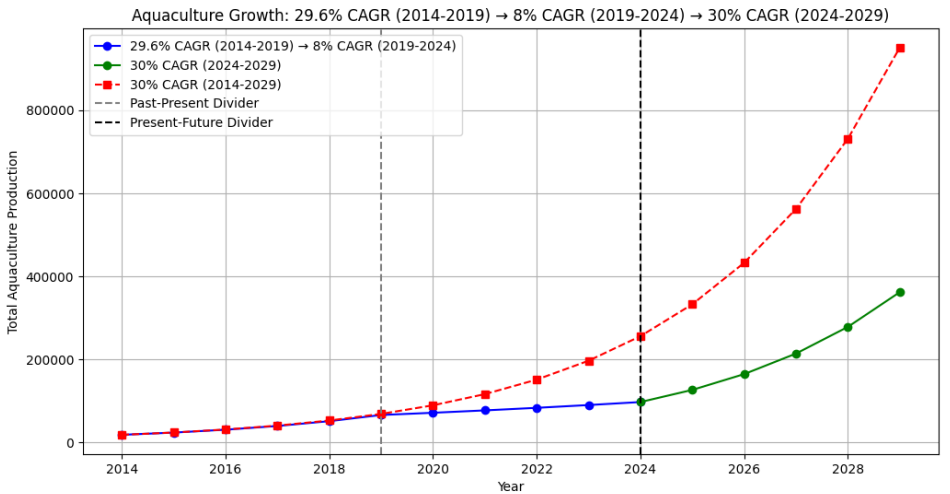
Aquaculture's Evolution: Pioneering Ambitious Growth



AP's Leadership:

- Andhra Pradesh (AP) leads the sector with a GSVA 1.7x higher than West Bengal, dominating since 2015.
- Its first-mover advantage allows tested and refined practices across small and large scales.
- Investments in modern aquaculture techniques and infrastructure strengthen its leadership.
- AP's expertise and robust ecosystem drive sustained growth through R&D and innovation.

- **High Initial Growth (2014-2019):** Aquaculture thrived due to increased investments, technological advancements, and supportive policies.
- **Growth Decline (2019-2024):** 8% decline suggests challenges such as resource limitations, policy changes, or market saturation.
- **Expected Recovery (2024-2029):** A 30% projected CAGR signals renewed growth driven by strategic initiatives and rising demand.
- **Ambitious Long-term Targets:** The red dashed line shows a potential scenario of achieving continuous 30% growth since 2014 requires intensified efforts and innovation.
- **Impact of Interventions:** Post-2024 growth underscores the need for infrastructure, technology, and policy support.
- **Potential Bottlenecks:** Address resource, infrastructure, and market gaps to prevent stagnation.



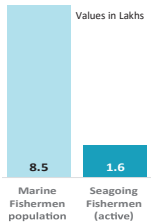
THE ANDHRA ADVANTAGE

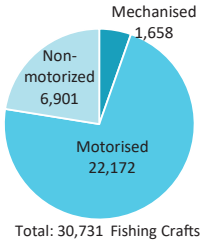
Driving Sustainable Aquaculture with Innovation, Technology, and Diversified Growth

Focus Areas for the Conclave: Brackish Water Shrimp, Fresh Water Prawn, Fresh Water Fish

Marine Fisheries

1053 Kms	Coastline
33,227 Sq.Kms	Continental shelf
352 Sq.Kms	Mangrove area



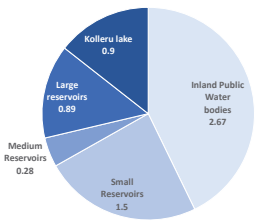


Total: 30,731 Fishing Crafts

555 (3.2%)	Fishermen Villages
7	Fishing Harbors
350	Landing Crafts

Inland Capture Fishery

6.24 Lakh ha	Inland Capture Area
11,514 Kms	Rivers & Canals
352 Sq. Kms	Mangrove area



Total: 6.24 lakh hectares

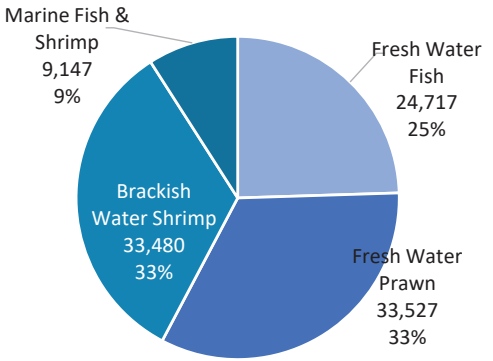
2,270	Fishermen Co-operative Societies
2.47 Lakhs	Fishermen Co-operative Members
23,885	Licenses Issued to Fishermen (Reservoirs)

Aquaculture

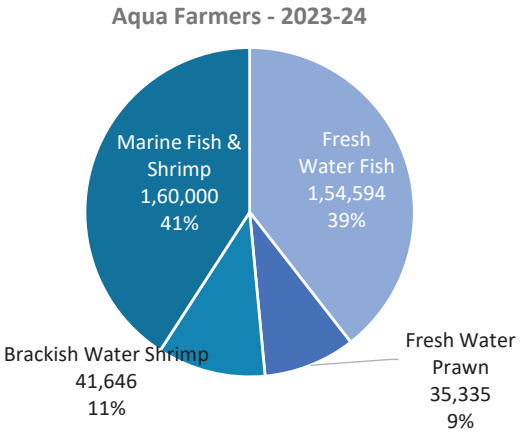
111	Cold Storages (2.43 lakh MT/Yr)
106	Processing Plants (5944 MT/day)
258	Ice Plants (5729 MT/day)

423	Shrimp Hatcheries (75,000 million /Yr)
42	Feed Mills (10,000 MT/day)
225	Aqua Labs

GVA in Crore Rs 2023-24



Aqua Farmers - 2023-24



Chapter 3

Aqua Production across Districts

(Brackish Water Shrimp/Fresh Water Prawn/Fresh Water Fish)

Andhra Pradesh showcases regional leadership in aquaculture, with significant contributions from inland and brackish water aquaculture.

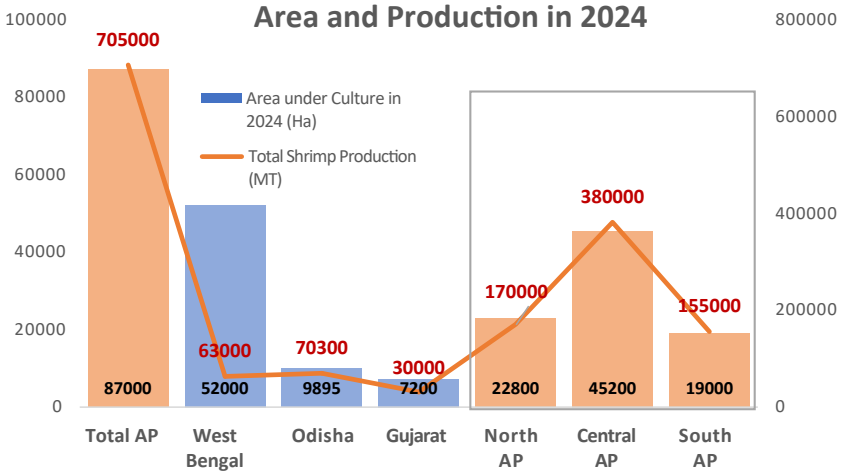
Districts exhibit notable variations in production, focusing on freshwater prawns and brackish water shrimp.

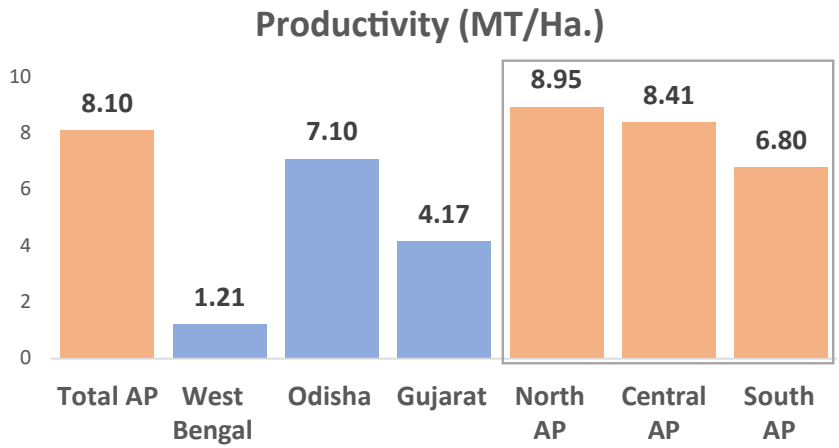
Proposed district-specific policy interventions aim to enhance production efficiencies.

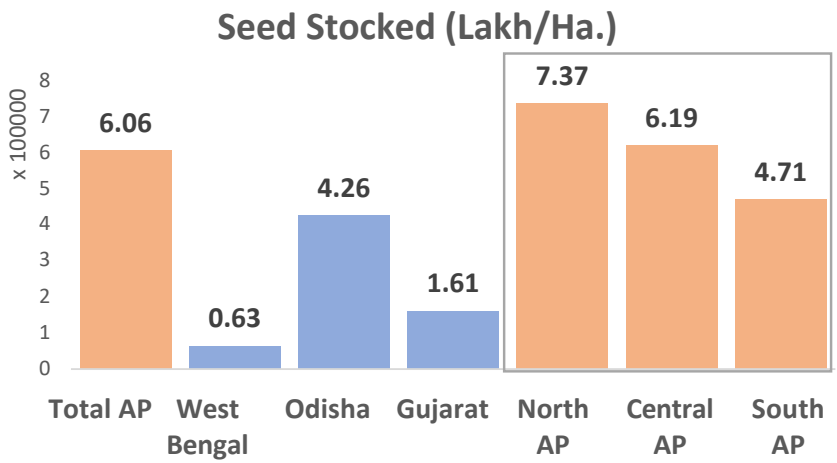
Ambitious growth targets for marine and inland fish production have been set for 2024-2029, supported by a detailed budget allocation.

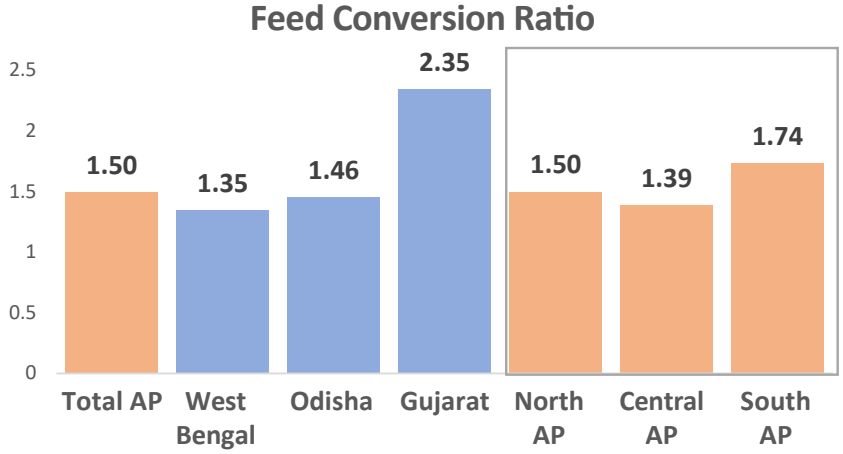
AQUA PRODUCTION ACROSS DISTRICTS

AP's Leadership: Details of 4 States in Shrimp Production







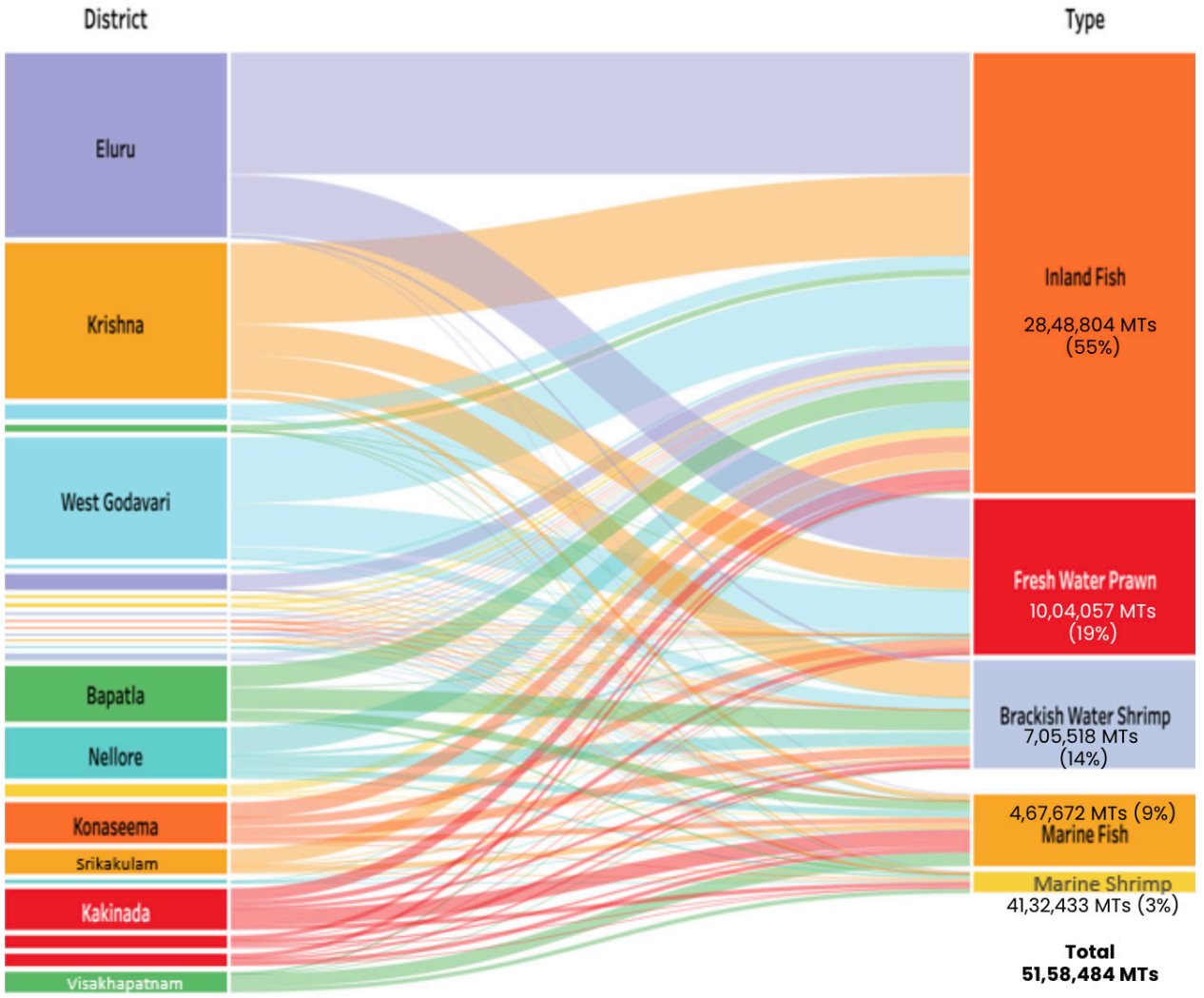


North A.P.: Srikakulam, Vizianagaram, Visakhapatnam and East Godavari
Central A.P.: West Godavari, Krishna, Guntur and Prakasam
South A.P.: Nellore, Chifoor, YSR Kadapa, Ananthapuramu, and Kurnool

*Data Source: Shrimp Crop Review Report 2024

AQUA PRODUCTION ACROSS DISTRICTS

Region-Wise Key Contributors to AP's Aqua Industry



Regional Variations in Production Types

Freshwater Prawns (19% of total production) and Brackish Water Shrimp (14%) are significant contributors to aquaculture diversity. These categories are concentrated in specific districts like Krishna and Nellore.

Marine production (fish and shrimp combined) accounts for a smaller share (12% total), highlighting the state's inland and brackish water aquaculture focus.

While Eluru, Krishna, and West Godavari focus on Inland Fish, districts like Nellore show diversification into categories like Brackish Water Shrimp and Freshwater Prawn.

Targeted policy interventions could further enhance production efficiencies and align with district-level strengths.

*Data source: Statistics Division, Fisheries Dept. Govt. of A.P., 2023-24

Chapter 4 Stakeholder Synergy for 5 year Action Plan

1. Key Challenges and Strategic Solutions:

- Addressing issues such as high production costs, disease management, and lack of insurance.
- Implementing targeted interventions for sustainability, like improved water quality, reduced antibiotic use, and biodiversity preservation.
- Empowering farmers with stable incomes, infrastructure improvements, and value-added processes.

2. Collaborative Ecosystem:

- Integration of government organizations, private sector, financial institutions, research bodies, industries, and academic institutions.
- Significant contributions from global organizations like the World Bank, FAO, and NABARD to provide financial and technological support.

3. Technological Innovations:

- Adoption of IoT, AI, and ML for real-time monitoring, disease detection, and production optimization.
- Automation across value chains to improve traceability, efficiency, and sustainability.

4. Collaborations Driving Growth:

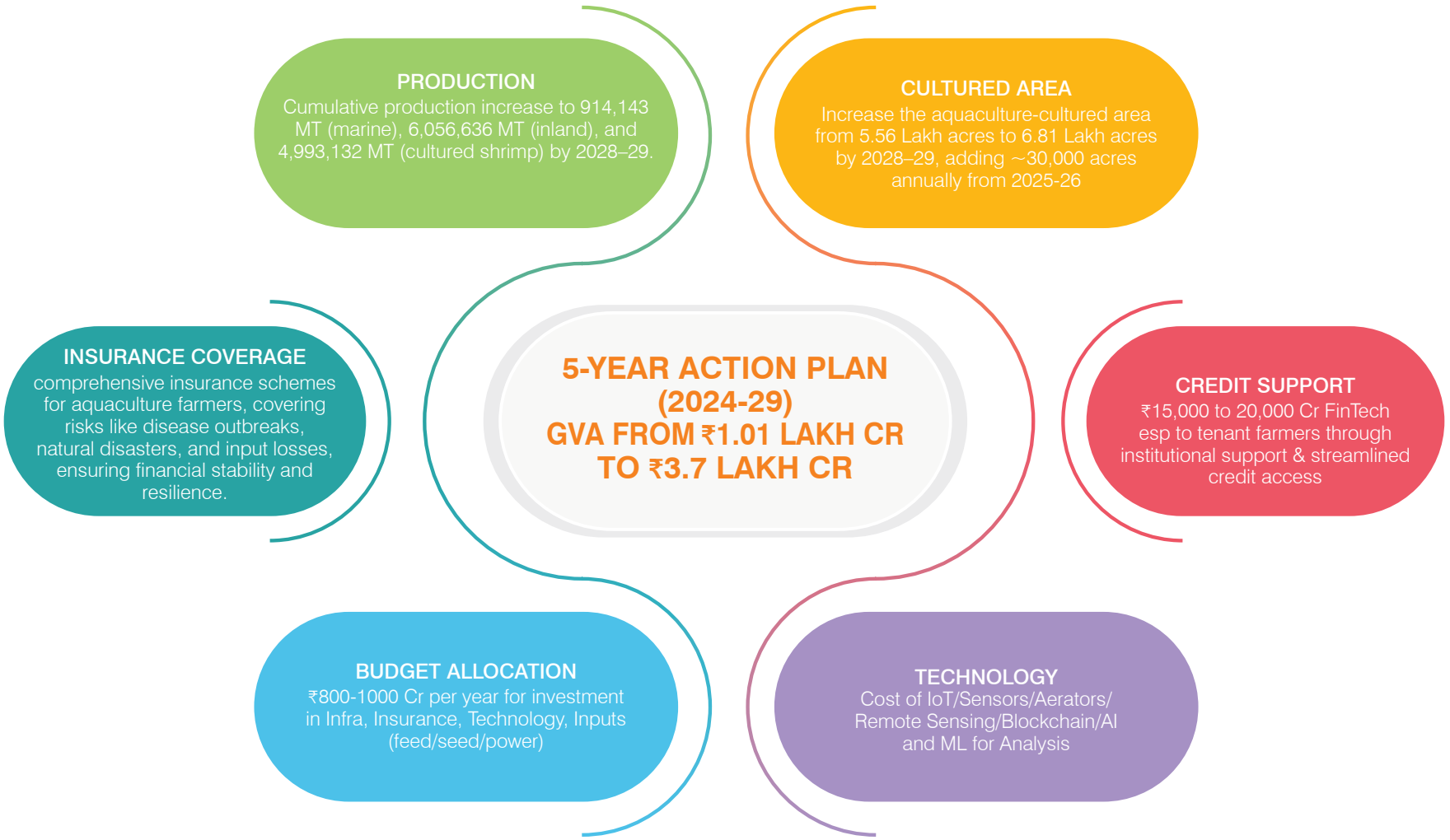
- Initiatives such as the FAO-GEF project, Integrated Aqua Parks, and watershed/cluster approaches are enhancing production diversity, exports, and farmer incomes.
- Precision aquaculture techniques led by CIBA are boosting yields and reducing waste.

5. Entrepreneurship and Market Linkages:

- Shrimp farming has emerged as a key entrepreneurial venture, supported by robust supply chains, hatcheries, and informal credit systems.
- Advanced processing facilities and global market linkages have elevated Andhra Pradesh as a leader in the aquaculture industry.

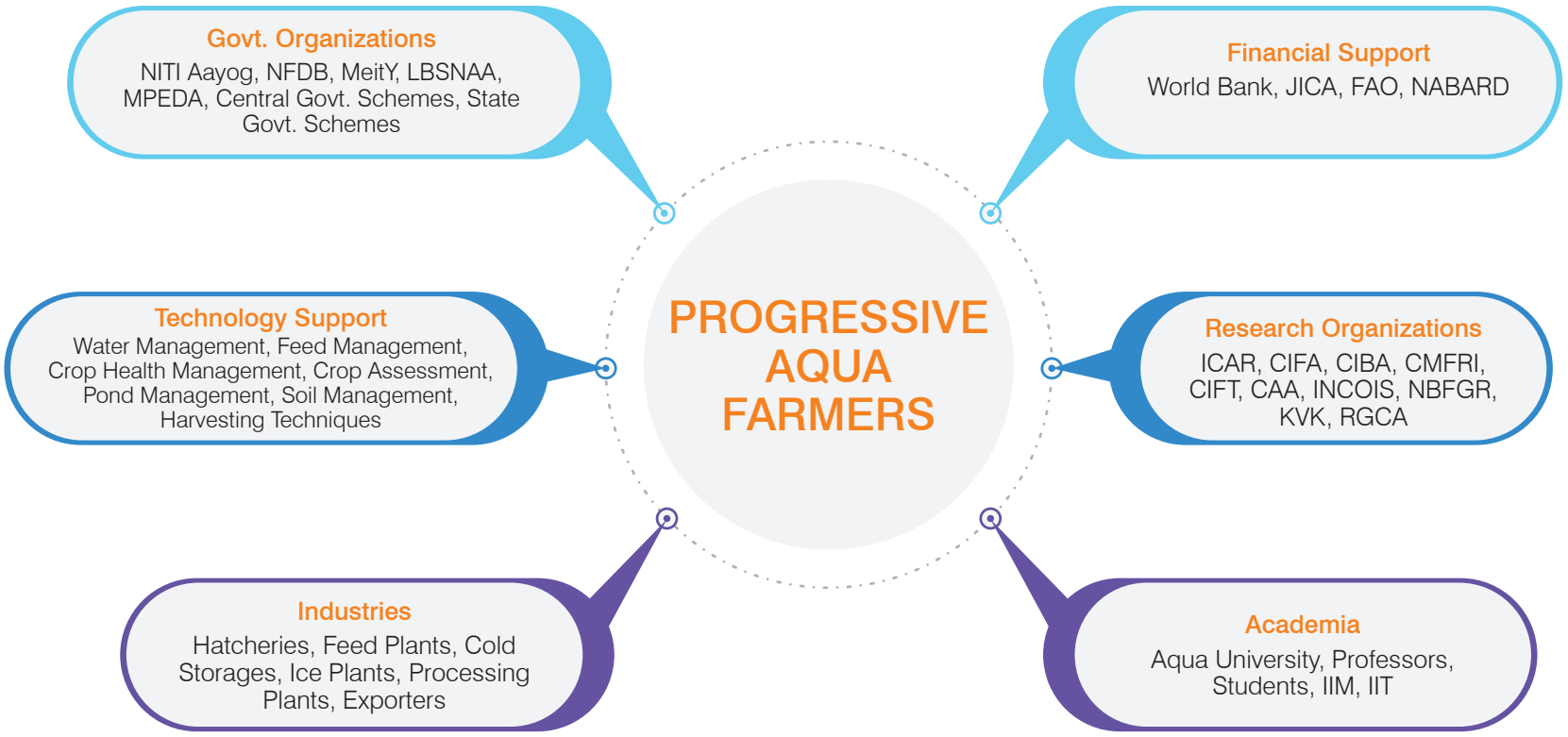
STAKEHOLDER SYNERGY FOR 5 YEAR ACTION PLAN

A Strategic push to triple aquaculture GVA by 2028-29



STAKEHOLDER SYNERGY FOR 5 YEAR ACTION PLAN

Aquaculture Innovation Accelerator: Driving Collaborative Growth



P4 in Aquaculture: Uniting for livelihood, security and protein sustainability

STAKEHOLDER SYNERGY FOR 5 YEAR ACTION PLAN

Key Challenges and Strategic Solutions for Sustainable Aquaculture

Issue: High Cost of Production

Accumulation of waste products like uneaten feed and feces is common in aquaculture farms → Improved water quality, reduced environmental degradation

Issue: Productivity Enhancement

High usage of antibiotics and chemicals to control diseases and boost productivity → Reduced dependency on antibiotics, healthier ecosystems.

Issue: Quality of exports

Production costs and fluctuating market prices create instability. → Stable incomes and sustainable growth for farmers

Issue: Infrastructure

Farmed species escape and interbreed with wild populations, reducing genetic diversity. → Increased genetic diversity and resilience in wild populations

Issue: Disease Management

High stocking densities result in stress and disease among farmed species → Healthier farmed species and higher productivity

Issue: Climate Change

Temperature fluctuations and extreme weather events are causing production losses. → Minimized losses and increased resilience to climate impacts

STAKEHOLDER SYNERGY FOR 5 YEAR ACTION PLAN

From Ponds to Progress: Piloting & Scaling-up Strategy

Transforming Aquaculture: The FAO-GEF Initiative for Andhra Pradesh

Sustainable Practices, Resilient Communities, and a Greener Future

The FAO Project under GEF-8 aims to transform Andhra Pradesh's aquaculture sector into a sustainable, climate-resilient food system, focusing on biodiversity and environmental sustainability. With a $13.15 million grant, it targets improved practices over 1.5 lakh hectares, reducing 4.7 million metric tons of emissions, and benefiting 1.28 lakh individuals, including 64,000 women. Launching in January 2025, the project will enhance resilience, strengthen the economy, and position Andhra Pradesh as a global leader in sustainable aquaculture.

Integrated Aqua Park: A Holistic Approach to Sustainable Aquaculture

Empowering Farmers, Enhancing Exports, and Driving Innovation

The Integrated Aqua Park in Andhra Pradesh aims to revolutionize aquaculture by providing end-to-end solutions, including hatcheries, processing units, and skill development centers, while promoting sustainability. It addresses seed quality issues, enhances market linkages, and reduces post-harvest losses, boosting farmer incomes and seafood exports. With tourism elements like aquariums and food courts, the project creates jobs and positions Andhra Pradesh as a global leader in sustainable aquaculture.

Tilapia & Seabass: Andhra Pradesh's Aquaculture Goldmine

Harnessing global demand with sustainable practices and premium exports.

Tilapia and seabass present significant opportunities for aquaculture development in Andhra Pradesh. Tilapia, valued for its global demand, affordability, and mild taste, requires antibiotic-free cultivation and advanced harvesting infrastructure for export readiness. With moderate risk and higher returns than regular carp, technification of farms is crucial to boost sustainability and productivity.

Seabass, a premium seafood option with strong demand in US and European markets, offers high-profit margins. Andhra Pradesh can capitalize by combating disease risks through advanced tools and branding seabass internationally.

Watershed/Cluster based approach for Sustainable Growth

Smart Monitoring for Resource Efficiency

Development of 2.2 lakh-acre watershed clusters.

Real-time resource optimization using satellite imagery, cloud-based monitoring platforms, and sensor networks ensures efficient water and nutrient use.

Precision Aquaculture by CIBA : Automation Meets Innovation

Boosting Yields, Reducing Waste with Data-Driven Farming

Yield improvements of 2x–2.5x through optimized inputs and data-driven farming methods.

Transitioning from two to three crop cycles annually using automated feeding systems and precision data analytics to increase productivity and reduce resource wastage.

STAKEHOLDER SYNERGY FOR 5 YEAR ACTION PLAN

Private Sector Innovation and Collaboration

Andhra Pradesh's aquaculture ecosystem, particularly in the shrimp sector, exemplifies the impact of active government support and private sector participation. The state alone ranks among the top five global shrimp producers, demonstrating the power of collaboration across value chain activities.

Entrepreneurial Farming

Shrimp farming is not a traditional occupation in Andhra Pradesh, but many farmers have entrepreneurially adopted it, showcasing resilience and adaptability. They have developed custom farming practices tailored to varied soil, water, and weather conditions, often seeking guidance from leading academics to optimize operations.

Market Linkages

Private players have built robust supply chains and created global awareness about Andhra Pradesh's aquaculture ecosystem. By addressing market needs and investing in necessary infrastructure, they have successfully connected local producers to international markets.

Hatcheries

Private players have significantly contributed by establishing and scaling a robust hatchery ecosystem, a cornerstone of the state's shrimp farming success.

Feed Dealership and Informal Credit

A crucial enabler has been the informal credit system created by private feed dealers. This financial support has empowered farmers and helped Andhra Pradesh emerge as the leading shrimp farming hub in India.

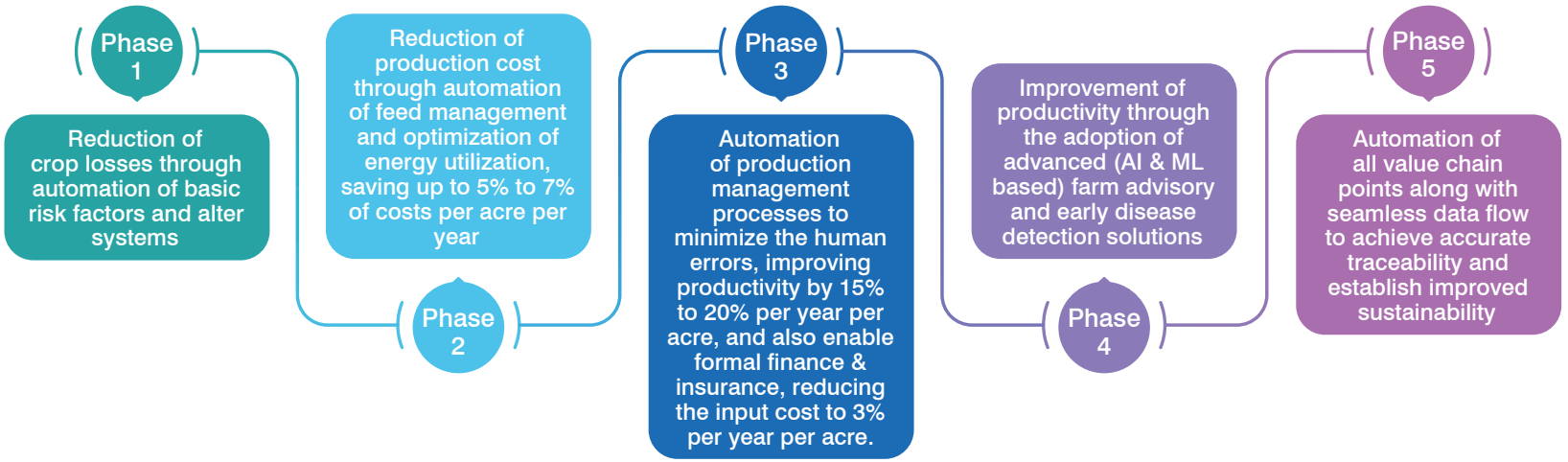
Processing and Exports

Entrepreneurs from the state have established advanced processing facilities, fostering trust among global buyers and driving a sharp increase in shrimp exports. These facilities have elevated the region's reputation for quality and reliability.

STAKEHOLDER SYNERGY FOR 5 YEAR ACTION PLAN

Harnessing Technology for Efficiency

Phases of Automation



Revolutionizing Aquaculture with Remote Sensing

Edge Technologies – Optical Sensor Satellites, SAR Satellites, and Proprietary AI/ML Algorithms

Pond Mapping, Classification and Status Monitoring – Identify and geo-map aquaculture ponds with AI-driven insights and Detect pond conditions (empty, active, or harvested) to estimate crop cycles.

Days of Culture (DoC) Tracking and Water Quality Analysis – Analyze historical & real-time data to determine shrimp growth stages and monitor key parameters (pH, salinity, ammonia, etc.) for better pond health.

Stocking & Harvesting Patterns, and Supply & Demand Forecasting – Predict trends to optimize supply chain management and leveraging AI models to anticipate market trends.

Environmental Impact Assessment and On-Ground Validation – Ensure sustainable aquaculture practices with ecosystem analysis and field studies

STAKEHOLDER SYNERGY FOR 5 YEAR ACTION PLAN

Revolutionizing Market Access for Fishermen & SHGs

Role of ONDC

The Department of Commerce, Government of India, has launched the Open Network for Digital Commerce (ONDC), an initiative aimed at democratizing e-commerce. The objective is to empower sellers, MSMEs, merchants, farmers, fishermen, and consumers by providing enhanced market access through digital platforms.

The Fisheries Department has facilitated the onboarding of potential sellers such as retail shops, traders, farmers, fishermen, Fishermen Cooperative Societies (FCS), Self-Help Groups (SHGs), Farmer Producer Organizations (FPOs), and Fishery Farmer Producer Companies (FFPCs).

As of now, 1,606 registrations have been completed, and 1,146 sellers are actively conducting online business through the ONDC platform, contributing significantly to the digitalization of the fisheries sector.

This initiative aligns with the government's vision to enhance the inclusion of small-scale fisheries and allied sectors in the broader e-commerce ecosystem, thereby boosting economic growth and livelihoods in rural and coastal communities.

Promoting Domestic Sales

Between 2005 and 2020, India's annual per capita fish consumption increased from 4.9 kg to 8.9 kg, reflecting a growing preference for fish in the diet. Encourage wider consumption of fish and seafood within India by enhancing local market linkages, awareness campaigns, and retail accessibility.

Nutritional Powerhouse

Fish is a **healthier alternative to red meat, rich in Vitamin D3, B12, A, Magnesium, Iron and Zinc,** essential for immunity, brain function, and overall well-being.

Empowering SHGs

Strengthening **Self-Help Groups (SHGs)** by supporting fish processing, value addition, and direct-to-consumer sales, ensuring economic growth and sustainability in aquaculture.

STAKEHOLDER SYNERGY FOR 5 YEAR ACTION PLAN

Transforming Marine Fisheries via Sustainable Harbors, DeepTech, and Blue Ocean Economy Innovation

Promotion of Marine Fisheries in Andhra Pradesh

Andhra Pradesh, with a 1053 km coastline across 12 coastal districts, has 65 coastal mandals and 555 coastal villages, supported by 350 notified fish landing centers. The state has a marine fisherman population of over 850,156, with 163,427 active marine fishermen operating 29,398 registered fishing crafts. The State has 4 fishing harbours, 350 fish landing centers, and 29,516 fishing crafts, categorized into 1,529 mechanized crafts, 21,800 motorized crafts, and 6,187 non-motorized crafts.

Fishing Harbors:

This is a significant initiative aimed at enhancing the livelihoods of coastal fishermen, preventing their migration, and promoting hygienic fish handling to boost seafood exports. Under this program, the government has embarked on the construction of (10) state-of-the-art fishing harbors. In Phase I, with a total outlay of ₹3,699.08 crores, four fishing harbors are under development at Juvvaladinne, Nizampatnam, Machilipatnam, and Uppada. Phase II involves proposals for six additional fishing harbors, including Budagatlapalam, Pudimadaka, and the modernization of Visakhapatnam Harbor.

Fish Landing Centres:

To support the sector further, the government is constructing six fish landing centers at key locations such as Chintapalli and Bheemilli, with a total budget of ₹126.91 crores.

Floating Jetties:

Under the Sagarmala initiative, 28 fish landing center locations in Andhra Pradesh have been proposed for the development of floating jetties with landside facilities. In Phase 1, 12 projects have received concurrence, with a financial outlay of ₹308.86 crore. The AP Maritime Board to act as the executive agency for implementing the projects.

Tracking Devices:

The state has also undertaken the installation of transponders on 23,058 mechanized and motorized boats to improve safety, provide real-time weather updates, and enhance fishing efficiency. So far, 1,205 transponders have been installed under the Pradhan Mantri Matsya Sampada Yojana (PMMSY), with completion targeted by March 2025.

Restoration of Pulicat Lake:

Another critical project is the restoration of Pulicat Lake, which has shrunk to 297 square kilometers, adversely affecting 20,000 fishermen families. The government plans to reopen the sea mouth at Rayadaruvu Village with an estimated budget of ₹97.09 crores under the Sagarmala program, with funding shared equally between the central and state governments. CRZ clearance for the project has been obtained, and the Andhra Pradesh Maritime Board will oversee its execution.

Blue Ocean Economy

The Blue Ocean Economy represents a transformative growth node, harnessing the vast potential of oceans and marine resources to drive sustainable development. It plays a pivotal role in ensuring food security, alleviating poverty, mitigating and building resilience to climate change impacts, enhancing trade and investment, improving maritime connectivity, promoting economic diversification, creating jobs, and fostering socio-economic growth. Key sectors and activities (11) under the Blue Economy include fishing (capture fishery, aquaculture, seafood processing, and export), marine biotechnology (pharmaceuticals, chemicals, seaweed harvesting, and marine-derived bio-products), and minerals (oil and gas, deep-sea mining for rare earth metals and hydrocarbons). It also encompasses marine renewable energy (offshore wind, wave, and tidal energy production), marine manufacturing (boat building, sail making, and aquaculture technology), and shipping, ports, and maritime logistics (shipbuilding, port operations, and freight forwarding). Additionally, marine tourism and leisure (scuba diving, whale watching, and coastal tourism), marine construction, marine commerce (financial, legal, and insurance services), marine ICT (consultancy, geo-informatics, and submarine telecom), and education and research (training and R&D) are integral components. By integrating these diverse sectors, the Blue Ocean Economy supports sustainable development, environmental conservation, and inclusive economic growth.

STAKEHOLDER SYNERGY FOR 5 YEAR ACTION PLAN

Aqua Culture
Sustainability Strategies

AREA EXPANSION MEASURES

1. Conversion of potential areas in Non Aqua Zone, into Aqua Zones and issue Licenses
2. Potential areas in waterlogged, unproductive agriculture areas to be declared as aqua zones.
3. Expansion of culture area through Cage culture, Pens, RAS, Biofloc, FRP tanks, HDPE sheets & Nurseries
4. New tanks to be taken up in fallow lands in coastal areas

ENHANCEMENT OF PRODUCTION BMPs

1. Culture of new Species, area conversion into shrimp farming, stocking High density in open waters
2. Usage of Hybrid/High vigor seed, BMPs and AQF Brooders
3. Crop rotation, Mixed cropping, Poly culture, sludge removal circular tanks, Pond toilet, Bio security
4. Biofloc Nursery seed with 3-4 crops with high densities
5. Eco-friendly-organic – Aqua culture, Cluster approach-community farming.

REDUCTION OF PRODUCTION COSTS

1. Alternative/Live feed reduce feed cost and not to exceed FCR 1:1
2. Decrease crop period by adopting stocking of advance size seed from Biofloc Nurseries
3. Adoption of latest Technologies like IOT, Auto feeders, Drones
4. Decrease usage of Antibiotics, medicines, chemicals shifting to usage of organic Probiotics.
5. Increase Domestic per capita consumption with lower count 80-100

INCREASE IN EXPORTS

1. Control of usage of Banned Antibiotics
2. New labs, LCMSMS Aqua Labs upgradation, frequent testing
3. Traceability and issue of licenses to all farmers with Geo tag
4. Shifting to new markets, culture for targeted countries export, low count and medium count, reduce taxes (CVD) and dumping duty
5. 100% testing of export products without rejections

Chapter 5 Survey Findings and Key Takeaways

A: Graphical Analysis

B: DeepTech, AI/ML based Analysis

Rapid Survey: Conducted from 5th to 23rd January 2025 for actionable insights.

Real Time Feedback: Addressing farmers' needs promptly with a perception-driven approach.

Inclusive Reach: Ensured participation from all farmers for comprehensive data.

Tech-Driven Analysis: Leveraged DeepTech tools for efficient insights and action.

Data-Led Solutions: Enabling Area/Season-specific strategies for aquaculture growth.

Real-time Governance through Command Control Centre with Farmer-Specific Call Centre Outreach

Systems for Impact Assessment are being developed.

SURVEY FINDINGS AND KEY TAKEAWAYS

Designing the Framework for Data Analysis

Rapid Survey
Conducted from 5th to 23rd January 2025 for actionable insights.

Realtime Feedback
Addressing farmers' needs promptly with a perception-driven approach.

Inclusive Reach
Ensured participation from all farmers for comprehensive data.

Tech-Driven Analysis
Leveraged DeepTech tools for efficient insights and action.

Data-Led Solutions
Enabling Area/Season-specific strategies for aquaculture growth

This survey aims to gather comprehensive data on aquaculture practices, including species cultured, production volumes, investment, insurance coverage, and technology adoption. By collecting this information, the study seeks to understand the current status and trends in aquaculture, which can inform policy-making, resource allocation, and the development of support programs for farmers.

The rapid survey data is being analysed using AI/ML and other latest tools.
The Outcomes of the survey are as follows:

Geographical distribution: Which districts, mandals, and villages are active in aquaculture?

Landholdings: What is their ownership structure (own or lease)?

Operational details: What type of aquaculture is practiced (freshwater or brackish water), and what is the extent of the ponds?

Economic factors: What are the investments made, sources of finance, and the value of production?

Technology usage: What modern technologies are being adopted in aquaculture?

Species-specific data: What species are being cultured, and what are the production and crop patterns?

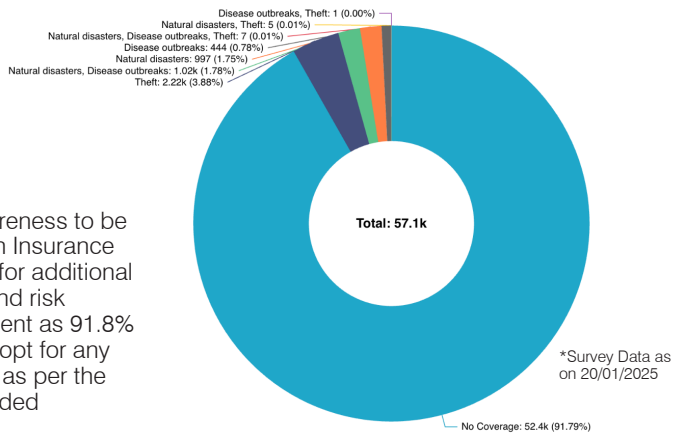
Risk management: Are farmers insured, and what risks are covered

Year-wise comparison: How does aquaculture vary over the years, including 2023-24, 2022-23, and 2021-22?

SURVEY FINDINGS AND KEY TAKEAWAYS

A: Graphical Analysis Technologies Implemented; Cultivated Landholding Size; Insurance Coverage Types

Insurance Coverage for the farms having production >50 Tonnes in both Brackish & Fresh Water

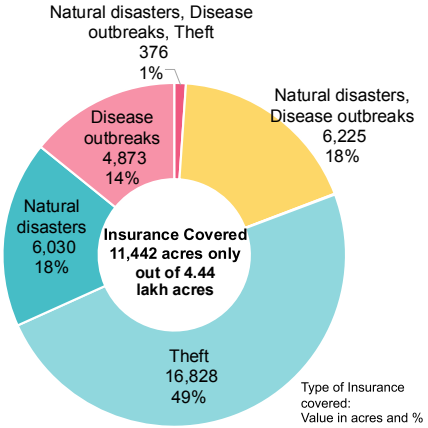


More Awareness to be created on Insurance coverage for additional benefits and risk management as 91.8% still didn't opt for any insurance as per the data provided

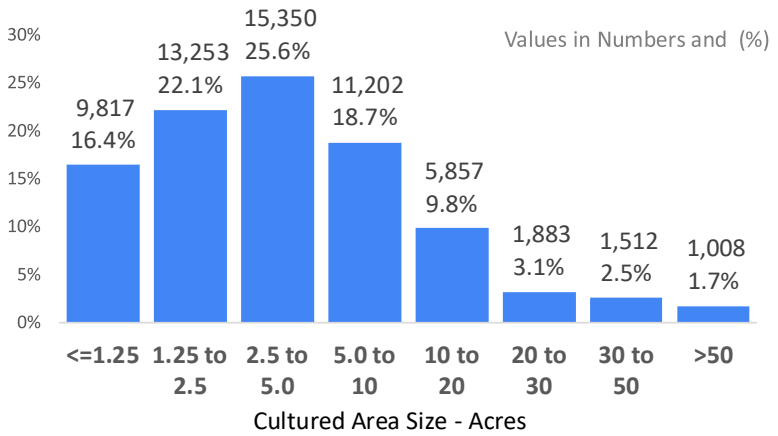
Insurance Coverage

In 2023-24, 97% of the 4.44 lakh acres (4.32 lakh acres) lacked insurance coverage.

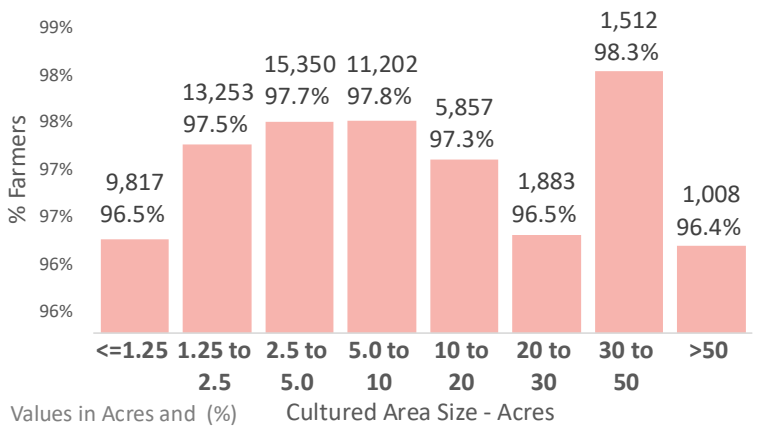
Only 3% (11,442 acres) were insured, with just 1% covering all three risks: natural disasters, disease outbreaks, and theft. Of the insured areas, 49% covered theft, 36% covered natural disasters, and 33% covered disease outbreaks. A comprehensive insurance policy covering all risks is crucial to support farmers financially and ensure operational continuity.



Farmers in Each Category



Insurance Not Covered



Cultured Landholding Size

16.4% of farmers < =1.25 acres
47.7% of farmers Between 2.5 to 5 acres
18.7% of farmers between 5-10 acres
17% of the farmers <= 10 acres

Of the total, 83% of farmers <=10 acres
9.8% of the farmers = 10-20 acres
7% of farmers cultivated => 20 acres

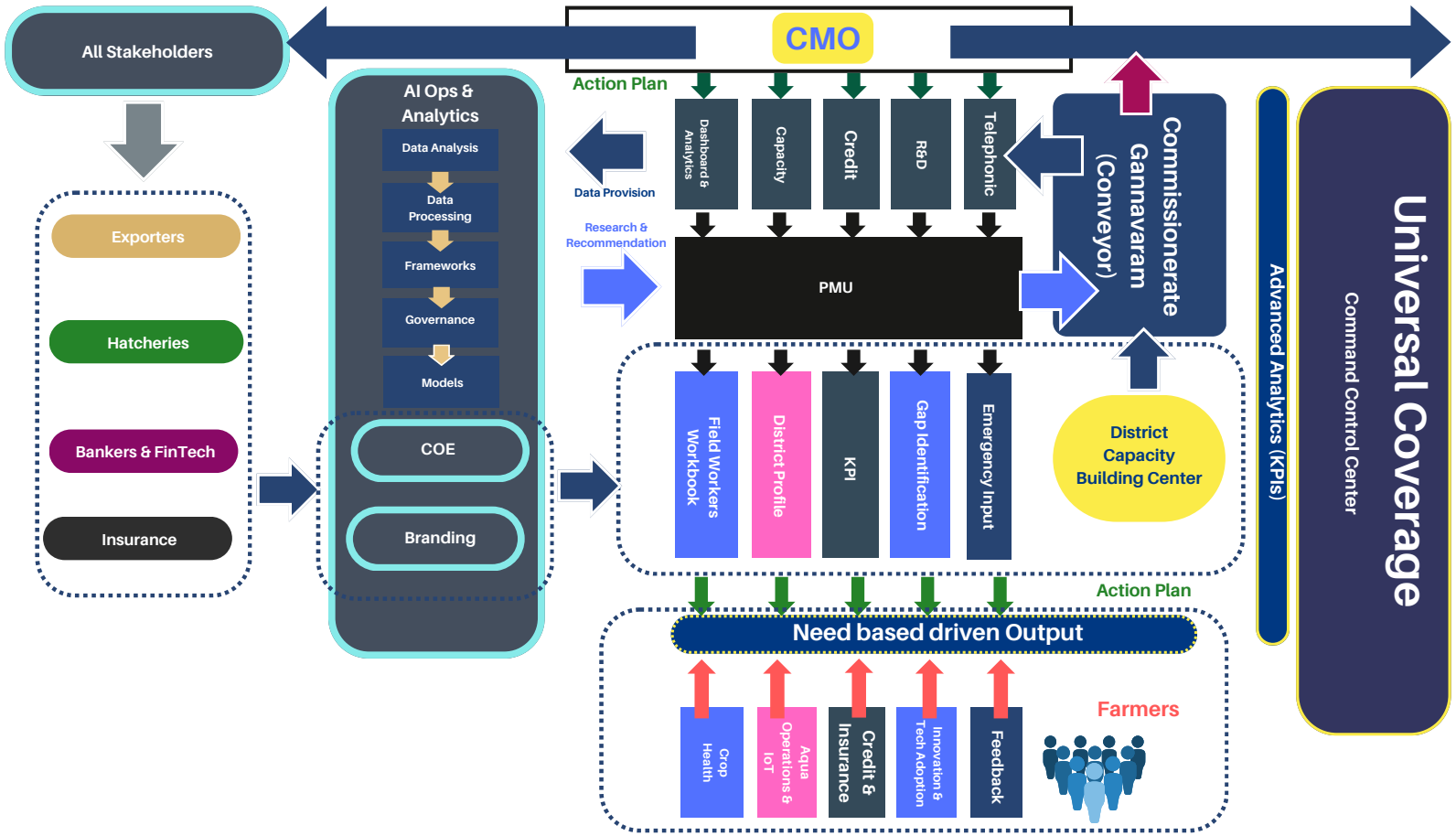
Insurance Not Covered Vs Cultured Land holding size

*Survey Data as on 23/01/2025

SURVEY FINDINGS AND KEY TAKEAWAYS

B: DeepTech,
AI/ML based Analysis

Command Control Management with SMART Notification & feedback based Predictive Analytics and DeepTech dashboard framework



SURVEY FINDINGS AND KEY TAKEAWAYS

B: DeepTech, AI/ML based Analysis

Leveraging AI, ML, and DeepTech for Advanced Aquaculture Data Insights

Total Aqua Cultivating Farmers

57.1k

Total Farmers - Aqua Culture

Total Production 2023-24

927k

Total Production (in Tonnes)

Total Production 2022-23

241k

Total Production (in Tonnes) - 2022-23

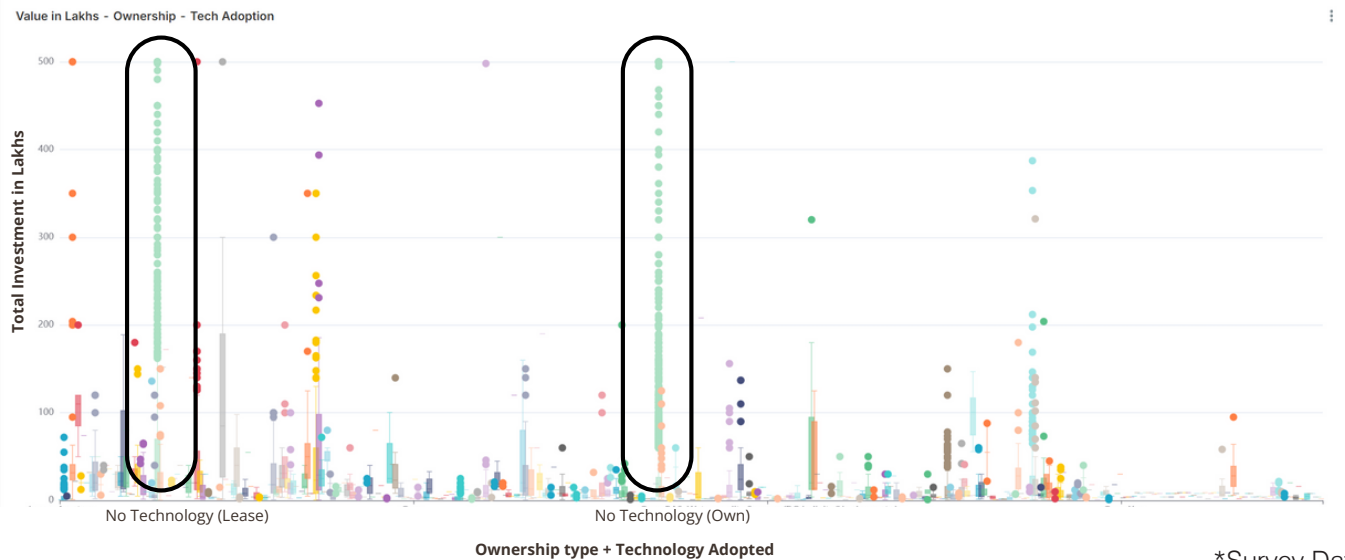
Total Production (in Tonnes) 2021-22

150k

Total Production (in Tonnes) 2021-22

Species Cultivation - Adoption 2022-23 and 21-22

		Metric	COUNT(Name)						
		Species_cultivated_2022-23	No			Yes			
		Species_cultivated_2021-22	No	Yes	Subtotal	No	Yes	Subtotal	Subtotal
Ownership	Type								
Lease	Brackish Water		889	155	1.04k	566	3.16k	3.73k	4.77k
	Fresh Water		1.54k	280	1.82k	1.25k	7.26k	8.51k	10.3k
Own	Brackish Water		2.53k	480	3.01k	2.13k	10.1k	12.3k	15.3k
	Fresh Water		4.15k	450	4.6k	4.2k	17.9k	22.1k	26.7k



*Survey Data as on 20/01/2025

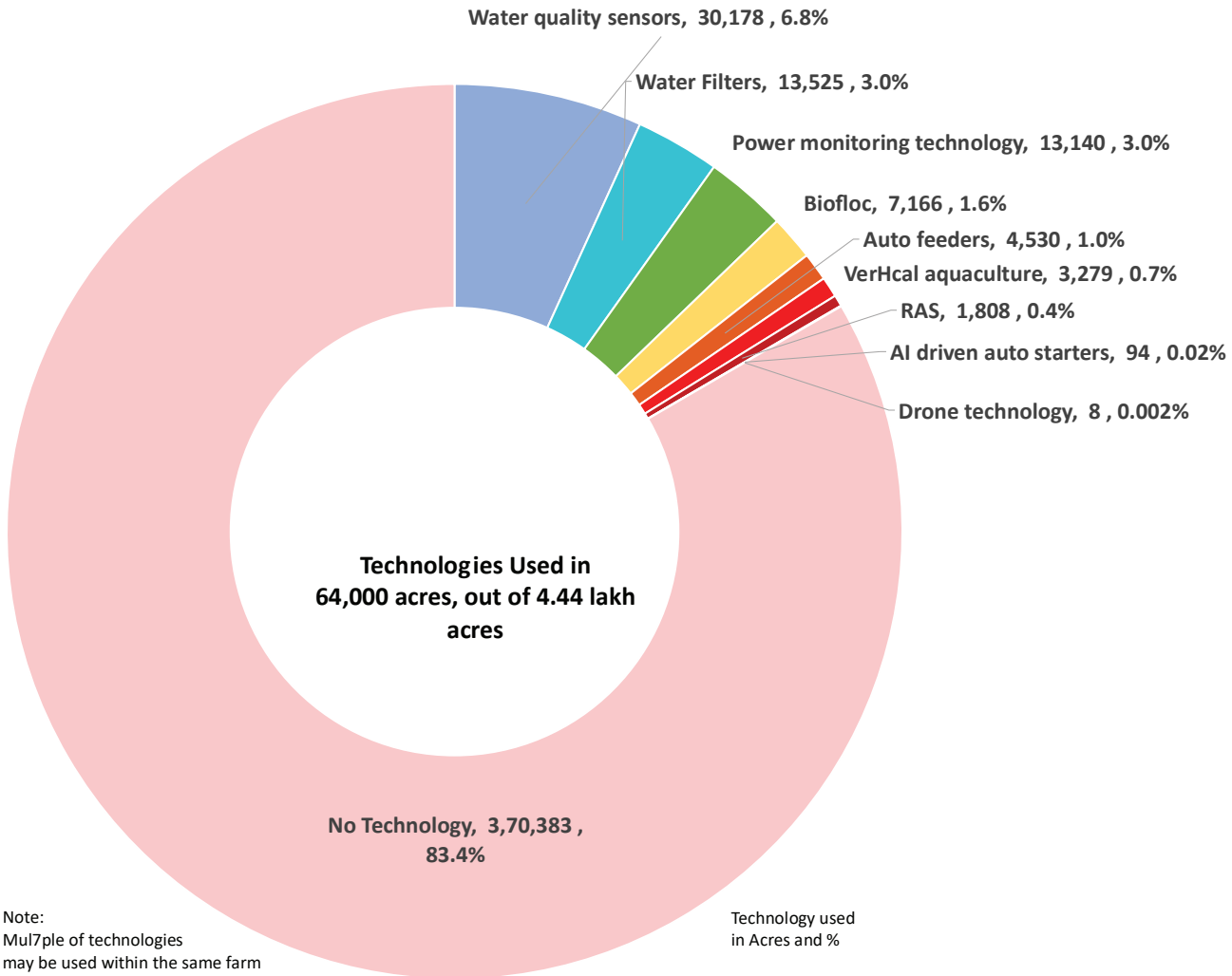
SURVEY FINDINGS AND KEY TAKEAWAYS

B: DeepTech, AI/ML based Analysis

Covered 60,000 farmers, 4.44 lakh acres and 8 Districts

Technologies Used

Only 14% of the 4.44 lakh acres utilize technology, with 86% remaining untapped. Among the 64,000 acres using technology, 41% employ water quality sensors, while drone usage is minimal (0.01%). Educating farmers on technology adoption is crucial to boost productivity.



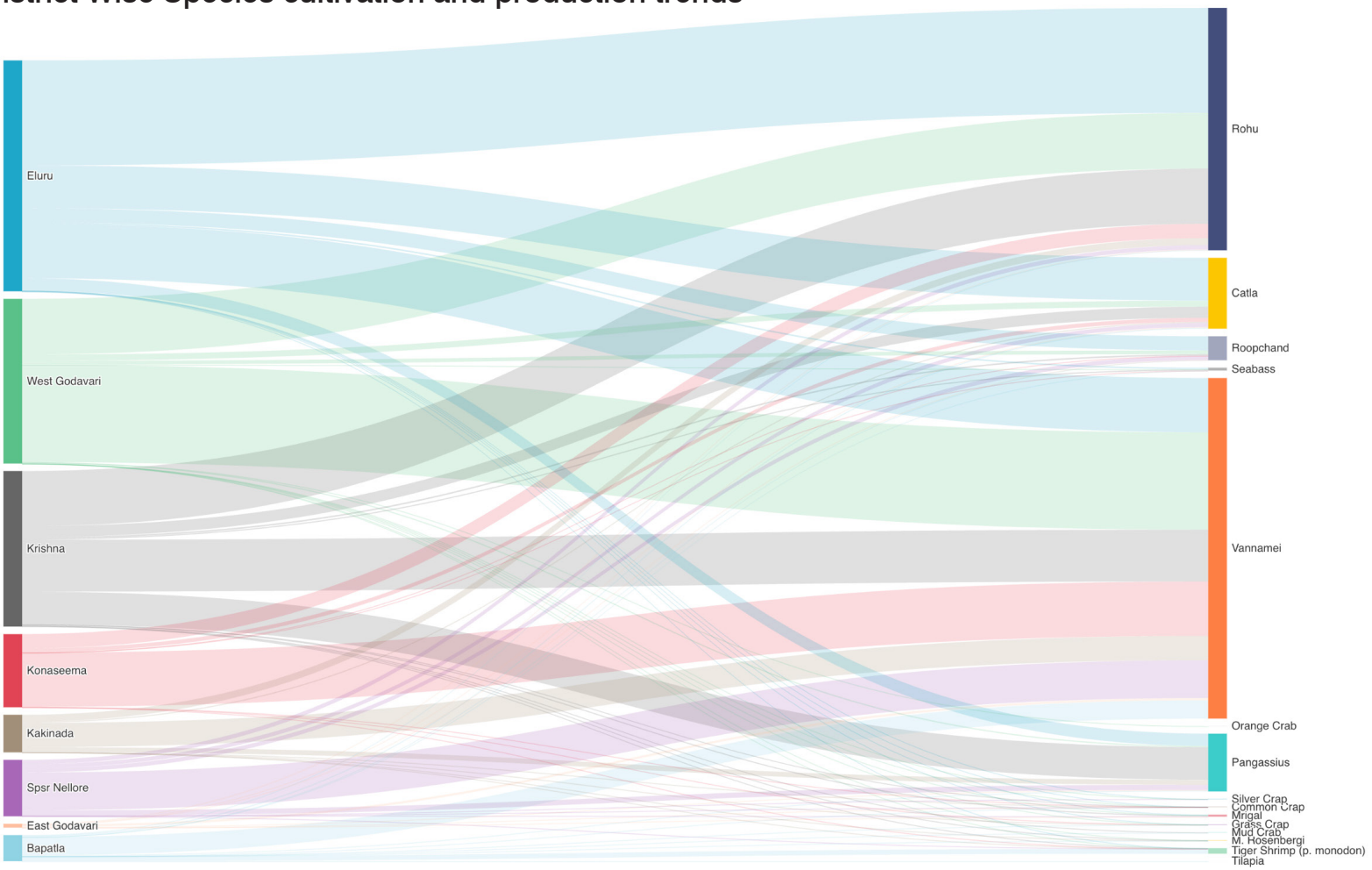
Note:
Mul7ple of technologies may be used within the same farm

Technology used in Acres and %

SURVEY FINDINGS AND KEY TAKEAWAYS

B: DeepTech, AI/ML based Analysis

District Wise Species cultivation and production trends



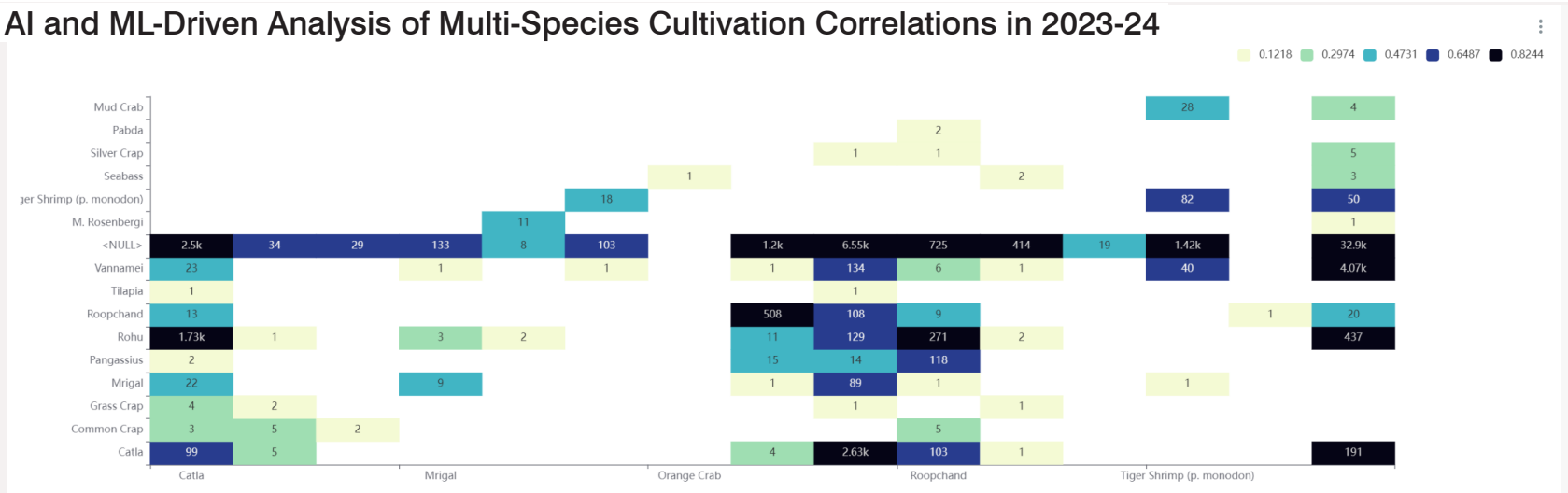
- Various Species Cultivation in each district as per data collected where Eluru has approx. 45% Rohu of its total production
- West Godavari has approx. 60% Vannamei of its total production
- Krishna is highly spread with (35%) Rohu, (32%) Vannamei and (21%) Pangassius of its total production

*Survey Data as on 20/01/2025

SURVEY FINDINGS AND KEY TAKEAWAYS

B: DeepTech, AI/ML based Analysis

AI and ML-Driven Analysis of Multi-Species Cultivation Correlations in 2023-24



- Provides correlation on multi-species cultivation based on production value in 2023-24

*Survey Data as on 20/01/2025

SURVEY FINDINGS AND KEY TAKEAWAYS

Cluster Analysis

Data Overview:

Original Shape: 57073 x 22, Final Shape: 52275 x 23, Null Values: 50+
Reason: All the columns exhibited no relation to the other dependent variables (>95% null)

Cluster 1

195

Premium Yield Farms

Production Level: High production (area > 10 hectares or high yield per unit area).

Value: Species of high economic value.

Species: Seabass, Rohu, M. Rosenbergi, Vannamei, Tiger Shrimp (P. monodon), Mud Crab

Cohort: Large-scale, high-value aquaculture for export and premium markets.

Avg. Production (in Tonnes): 10.0

Avg. Investment (in Lakhs): 27.27

Species Cultivated (Min Count): 1.0

Species Cultivated (Max Count): 4.0

Cluster 2

27,270

Subsistence Farms

Low Production Inferior Value Species

Production Level: Low production (area < 10 hectares).

Value: Species of low economic value.

Species: Catla, Pangassius, Roopchand, Common Carp, Pabda, Mrigal, Grass Carp, Silver Carp, Tilapia

Cohort: Small-scale operations focused on local or subsistence markets.

Avg. Production (in Tonnes): 4.15

Avg. Investment (in Lakhs): 7.29

Species Cultivated (Min Count): 1.0

Species Cultivated (Max Count): 4.0

Cluster 3

4,722

Niche High value Farms

Low Production High Value Species

Production Level: Low production (area < 10 hectares).

Value: Species of high economic value

Species: Seabass, Rohu, M. Rosenbergi, Vannamei, Tiger Shrimp (P. monodon), Mud Crab

Avg. Production (in Tonnes): 3.83

Avg. Investment (in Lakhs): 10.20

Species Cultivated (Min Count): 1.0

Species Cultivated (Max Count): 4.0

Disclaimer: The analysis is subjected to quality of data collected

SURVEY FINDINGS AND KEY TAKEAWAYS

Cluster Analysis

By targeting these diverse audience segments with an impactful approach that aligns with the specific needs and goals of each target cluster, governance can be enhanced by 27-30% further

Cluster 4

1,605

Regional Balanced Farm

Medium Production High Value Species

Production Level: Medium production (area = 10 hectares or moderate yield).

Value: Species of high economic value

Species: Seabass, Rohu, M. Rosenbergi, Vannamei. Tiger Shrimp (P. monodon), Mud Crab

Avg. Production (in Tonnes): 32.48

Avg. Investment (in Lakhs): 59.39

Species Cultivated (Min Count): 1.0

Species Cultivated (Max Count): 4.0

Cluster 5

16,930

High Species Variant Bulk Protein Farms

Production Level: Medium production (10 tonnes)

Value: Species of low economic value

Species: Catla, Pangassius, Roopchand, Common Carp, Pabda, Mrigal, Grass Carp, Silver Carp, Tilapia

Tech Used: Yes (> 40%)

Avg. Production (in Tonnes): 37.10

Avg. Investment (in Lakhs): 42.24

Species Cultivated (Min Count): 1.0

Species Cultivated (Max Count): 4.0

Cluster 6

1,553

Mass Market Farms

Production Level: High production (area > 10).

Value: Species of low economic value.

Species: Catla, Pangassius, Roopchand, Common Carp, Pabda, Mrigal, Grass Carp, Silver Carp, Tilapia

Avg. Production (in Tonnes): 10

Avg. Investment (in Lakhs): 15.53

Species Cultivated (Min Count): 1.0

Species Cultivated (Max Count): 4.0

SURVEY FINDINGS AND KEY TAKEAWAYS

B: DeepTech, AI/ML based Analysis

1. How does technology adoption impact production?

Technology Adopted Cultivators (2023-24): Average production exceeds 50 tonnes with minimal investments of 10-20 lakhs.

Non-Technology Cultivators: Higher costs and lower yields observed across districts.

Avg Production is more around 10-12 Tonnes in Tech Adopted Farms compared to Non-Tech Farms with optimal investment and minimal insurance coverage

Avg. Investment is 10 -30 Lakhs in Tech based farms and more than 50 lakhs and in some cases > 2 Crores in Non-Tech based farms (need to push for Tech Adoption)

Significance: Promotes the need for greater technology adoption to optimize investment and maximize production.

2. What are the insurance coverage statistics?

2023-24: 91% of farmers still lack insurance coverage.

Overall: Over 97% lack coverage, necessitating evaluation for tailored credit and insurance plans.

Significance: Critical for risk management and securing sustainable growth.

3. How can insurance awareness and coverage benefit farmers?

Risk Management: Helps mitigate losses due to unforeseen events.

Additional Benefits: Offers credit support and stabilizes incomes.

Significance: Drives sector resilience and builds farmer confidence.

4. What species show the best cultivation potential?

Vannamei: Highly cultivated species in 2023-24.

Rohu: Better average production and investment value, emerging as a viable alternative.

Significance: Multi-species cultivation diversifies risks and enhances profitability.

5. What trends are observed in multi-species cultivation?

Correlation: >0.60 between multi-species cultivation and production value in 2023-24.

Significance: Highlights the benefits of diversified cultivation strategies to optimize returns.

6. What are district-specific insights?

Eluru: 45% of total production is Rohu.

West Godavari: 60% of total production is Vannamei.

Krishna: 35% Rohu, 32% Vannamei, 21% Pangassius.

Significance: Provides a roadmap for species prioritization based on district strengths.

7. How to reach 30% growth and how do field agents and outreach play?

750 Field Agents: Targeting 1 lakh farmers by incorporating tech into all 50K farmers and promoting best practices

WhatsApp Governance: Enhances communication and governance.

Significance: Strengthens the connection between stakeholders and farmers, facilitating faster adoption of best practices.

Chapter 6 Key Themes for Conference

Welcome Questions: Open forum for inquiries and discussions.

Expert Replies: Dedicated experts available for addressing queries.

Panel Presentation: Expert panel PPT for comprehensive insights and guidance.

WhatsApp Groups: Farmers Group, Private Stakeholders Group, Department Functionaries Group

Contact Channels: Website, Mobile, WhatsApp Support

Suggestions/Comments received by stakeholders are added to the end of the document

KEY THEMES FOR CONFERENCE

Improved farm productivity | Sustainable tech adoption | Optimized value chains
Data-driven governance | Enhanced private collaboration

Sustainable Aquaculture and Farmer Empowerment

- Implement climate-resilient practices and productivity enhancement techniques.
- Ensure equitable farmer growth through fair returns and insurance coverage

Technology-Driven Growth and Protein Security

- Leverage fintech, AI, IoT, and blockchain to modernize operations and boost efficiency.
- Drive demand, local sales, and nutritional awareness with MSME support and innovative tools

End-to-End Value Chain Optimization

- Build cold chain and processing infrastructure to support seamless operations.
- Integrate advanced technologies and GI-based branding to enhance market reach

Data-Driven Governance and Policy Monitoring

- Utilize AI, ML, and data-driven tools to enhance governance and policy outcomes.
- Strengthen state-level management structures for sustainable credit systems and capacity building.

Innovation in Inputs and Private Sector Collaboration

- Promote cost-effective feed, advanced tools, and superior broodstock for sustainability.
- Foster private-sector partnerships through the P4 model to boost innovation.

WHY ATTEND THE CONCLAVE?

Driving Innovation

Discover how cutting-edge technologies like AI, IoT, drones, and blockchain are transforming aquaculture practices for better efficiency and productivity.

Prioritizing Sustainability

Explore Andhra Pradesh's efforts in climate-resilient aquaculture, eco-friendly farming methods, and sustainable marine practices.

Infrastructure and Value Addition

Delve into plans for state-of-the art fishing harbours, cold chain systems, and advanced processing facilities to boost value-added exports.

Achieving Global Excellence

Unpack strategies for positioning Andhra Pradesh as a leader in sustainable and quality seafood exports.

DRAFT AGENDA

DAY 1 (16.02.2025)

Internal LAB and Round Table with 35-40 Experts & Farmers

Afternoon: Setting the Stage

Inaugural Workshop: Key stakeholders (policy makers, researchers, fintech, aqua farmers, exporters) discuss data-driven insights on aquaculture trends, challenges, and strategies.

Outcome: Draft roadmap for 30% year-on-year growth over 5 years.

Evening

Thematic Group Discussions: Focus on 5 Thematic groups viz., sustainability, technology, value-chain optimization, smart governance and P4 models.

Outcome: Actionable goals for each theme.

DAY 2 (17.02.2025)

Formal Inauguration of Conclave

Morning: Collaborations and Conclave Inauguration

Workshop Continuation: Refinement of ideas and group presentations with expert feedback.

Afternoon: Conclave Inauguration

Keynote by Hon'ble Minister: Vision 2030—Transforming Aquaculture.

Panel discussions on sustainability, technology, value-chain optimization, smart governance and P4 models involving women/entrepreneur empowerment.

Launch of new initiatives.

Night: Roundtable on strengthening People-Public-Private Partnerships (P4).

FINAL DAY (18.02.2025)

HCM interaction and Launch of 5 Year Action Plan

Morning to Lunch : Vision, Innovation, and Implementation Leadership Meet: HCM and 25 leaders discuss scaling Andhra Pradesh's aquaculture globally.

Live Demonstrations: Advanced technologies and sustainable practices showcased.

Plenary: Consolidated findings, HCM remarks and launch of 5-Year Aquaculture Vision Plan as a global aquaculture hub.

ANNEXURE: SUGGESTIONS/COMMENTS

10 KEY AREAS FOR PROMOTION OF AQUACULTURE SECTOR AND SEAFOOD EXPORTS IN ANDHRA PRADESH

Key Area	Actions required
Enhancement of Production and Productivity	• Promotion of advanced technologies(RAS, IMTA, Bio-floc, cage culture, pen culture, intensive farming etc.). • "Land Lease Policy for coastal aquaculture" for identification of potential areas and expansion • "Reservoir Leasing Policy" for increasing productivity and production from reservoirs • Production, supply and stocking of disease-resistant and genetically improved fish and prawn seed in public water bodies and promotion of captive seed nurseries under MGNREGS. • Revive and strengthen Govt. Fish Seed Farms with adequate infrastructure and staff. • Promote automation and IoT-based tools for smart aquaculture. • Promotion of cluster approaches through aquaculture societies
Environmental Sustainability	• Adherence to " Pre-cautionary principles of Environmental Law" and "Polluter Pay Principle" • Promotion of eco-friendly aquaculture practices and organic farming using organic inputs • Reduce carbon emissions and soil degradation. • Taking up de-silting and de-weeding of creeks, canals, drains for free flow of water • Allocation of free irrigated water to aquaculture farmers through Water Leasing Policy. • Regulate invasion of exotic species and up-keeping bio-diversity • Strict prohibition on aquaculture activities in mangroves, ecologically sensitive areas and agricultural lands.

Key Area	Actions required
Diversification in Aquaculture	• Promotion of alternate species both in freshwater (GIFT Tilapia, Amur carp, Scampi, Jayanthi rohu) and Brackishwater (Mud crab, Marine Finfish and indigenous shrimp) • Establishment of hatcheries, brood banks, Broodstock Multiplication Centre's, Nucleus Breeding Centre's in P4 model for production and supply of quality broodstock and seed. • Operationalise Integrated Aqua Park (IAP) & on-going aquaculture projects within time frame. • Incentives for diversification and infrastructure under Utilize PMMSY. • Establish Aquatic Quarantine Facility (AQF) in Vizag for SPF shrimp broodstock. • MoUs with ICAR, GoI Institutions and expertise agencies for technology transfer and infusion.
Promotion of Mariculture activities	• Bringing "Mariculture Leasing Policy" for optimal utilisation of coastal waters for seaweed farming, cage culture, raft culture, and bi-valve farming. • Collaboration with ICAR-CMFRI, CIBA, NIOT, and CSIR for capacity building and promotion among Fisherwomen, SHGs, FFPOs, and entrepreneurs. • Support with backward and forward linkages for hatcheries, feed plants, processing and marketing facilities.

Key Area	Actions required
Reduction of Production Costs	• Promotion of cost-effective feeds using local ingredients to reduce dependency on imported inputs. • Minimize feed wastage and improve Feed Conversion Ratios (FCR). • Minimize operational cost by introducing IoT tools and drones • Strict regulation on spurious inputs, quality assurance and price regulation in aquaculture inputs (feed, seed, broodstock and health care products) • Credit flow through financial institutions to help the farmers from private lending with high rate of interest.
Disease Management	• Strengthen Digitalized Disease Surveillance System and Disease Diagnosis Labs. • Strict compliance to bio-security standards, hygiene and sanitation condition • Regulating in-breeding in freshwater fishes and production and supply of genetically improved and disease-resistant fish and shrimp species • Strict regulation on usage of pharmacologically active substances, anti-microbial agents through Task Force Committees, encourage growth promoters and immune-stimulants • Growth and health monitoring using IoT- based tools and declaration of disease free zones. • Extension of services of ICAR institutions through Advisories and toll-free services on disease management including "Report Fish Disease" App of ICAR-NBFGR to the farmers and aquaculture technicians
Aquaculture Crop Insurance	• Sensitise and coverage of farmers under Aquaculture Crop Insurance under PMMKSSY. • Enter MoU with NFDB & ICAR-CIBA to support farmers with insurance coverage under PMMKSSY.

Key Area	Actions required
Value Addition	• Enhancement of value addition to fish and fishery products from 10% to 30-40% • Financial support from Ministry of Food Processing Industries under PMKSY, PMFME and PMMSY of DOF for establishment of facilities for value-addition to indigenous raw material, value-added products • Strengthening of testing lab facilities for quality assurance • Import of raw material for re-processing and re-export.
Export Promotion	• Advanced Traceability Systems in aquaculture supply chain through blockchain technology • Promotion Seafood exports with branding and quality assurance certification • Support for "Mega food parks", "Cold chain facilities" and Centre of excellence" • Exemption from Anti-Dumping Duties (ADD) and Counter-Veiling Duties (CVD) by the Govt. of India • Expansion of International market for value added products, live fish & Shrimp and soft-shell crab. • Promote direct linkages between farmers and exporters. • Establishment of adequate Quality Control labs for 100% PHT screening on par with international standards • Regulation on peeling and pre-processing plants for quality control.
Marketing	• Coordination with GoI Ministries to address the issues at International market by the High Level Committee • Conduct market research and trade intelligence to enhance exports. • MPEDA to share weekly seafood market prices and demand forecasts. • Boost Domestic Marketing of live and frozen fish/prawn to enhance per capita consumption in the State • Fish supply to other States with branding and quality certification.

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