

ICSSR-SRC SPONSORED  
TWO-DAY NATIONAL SEMINAR

# REPORT

ON

## AQUA ENTREPRENEURSHIP OPPORTUNITIES AND CHALLENGES FOR VIKASITH ANDHRA PRADESH



16th & 17th October 2025



**SPONSORED BY**  
INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH  
SOUTHERN REGIONAL CENTRE  
MINISTRY OF EDUCATION, GOVT OF INDIA  
HYDERABAD, TELANGANA-500007



**ORGANIZED BY**  
Department of Commerce  
S.C.I.M. Govt. College (A), TANUKU

## ABOUT THE SEMINAR

### 1. Introduction

Andhra Pradesh, widely known as the “**Aqua Hub of India**,” plays a pivotal role in the nation’s aquaculture economy, contributing more than **40% of India’s total aquaculture exports**. With its extensive network of **over 5.73 lakh acres of culture area**, 30 lakh families are depended on directly and indirectly, approximately **2 lakh operational ponds**, the state has emerged as a major producer and exporter of shrimp, fish, and other aquatic species. Aquaculture in Andhra Pradesh not only serves as a crucial source of employment and income generation for coastal and rural communities but also acts as a significant contributor to India’s **Gross State Domestic Product (GSDP)** and **foreign exchange earnings**.

The state’s strategic geographical advantages—such as a **long coastline, favorable climatic conditions, fertile deltas, and rich water resources**—have supported the growth of aquaculture as a thriving economic sector. Over the past two decades, the introduction of **modern farming techniques, feed technology, disease management systems, and export infrastructure** has transformed traditional aquaculture practices into a competitive, technology-driven industry. As a result, aquaculture has evolved from being a subsistence activity into a **high-value commercial enterprise**, driving the socio-economic transformation of several coastal districts.

However, this remarkable progress has not been without challenges. Recent **global trade disruptions**, including the **imposition of nearly 26% anti-dumping and countervailing duties by the United States**, have severely affected India’s shrimp exports. These measures, coupled with the “**India Shrimp Act**” introduced by U.S. senators seeking to safeguard local shrimp farmers in Louisiana, have led to a decline in export volumes and prices, thereby impacting the livelihoods of thousands of aqua farmers and processing units across Andhra Pradesh.

The state’s dependence on international markets has exposed the industry to **price volatility, trade barriers, and non-tariff restrictions**, emphasizing the urgent need for policy-level interventions, diversification of export destinations, and innovation-driven entrepreneurship.



Furthermore, **environmental challenges** such as **climate variability, salinity imbalances, disease outbreaks, and water pollution** pose serious threats to aquaculture productivity and sustainability. Issues of **waste management, resource depletion, and**

**ecological imbalance** have raised concerns about the long-term resilience of the sector. These factors underline the necessity of adopting **eco-friendly, climate-resilient, and sustainable aquaculture models** that balance economic growth with environmental stewardship.

In this challenging and transformative context, the **Department of Commerce, S.C.I.M. Government College (Autonomous), Tanuku**, organized a **Two-Day ICSSR–Sponsored National Seminar** on “*Aqua Entrepreneurship: Opportunities and Challenges for Vikasith Andhra Pradesh*” on **16th & 17th October 2025**. This national seminar aimed to bring together **academicians, policymakers, aqua entrepreneurs, industry experts, and researchers** on a common platform to deliberate on the current status, challenges, and prospects of aquaculture and aqua entrepreneurship in India, with a specific focus on Andhra Pradesh.

The seminar served as an academic and professional interface to:

- Examine **the economic, environmental, and policy dimensions** of aqua entrepreneurship.
- Encourage **innovative and sustainable practices** for improving productivity and export competitiveness.
- Promote **skill development and financial inclusion** for youth and rural communities.
- Develop **policy recommendations** to strengthen India’s position as a global leader in aquaculture.

Through its multidisciplinary approach, the seminar aligned itself with the vision of **Vikasith Andhra Pradesh** and **Viksit Bharat@2047**, emphasizing the role of aqua entrepreneurship in achieving **self-reliance, sustainable livelihoods, and inclusive economic growth**.

## II. OBJECTIVES OF THE SEMINAR

The **Two-Day ICSSR–SRC Sponsored National Seminar on “Aqua Entrepreneurship: Opportunities and Challenges for Vikasith Andhra Pradesh”** was conceived with the objective of fostering a multidisciplinary dialogue among **academicians, entrepreneurs, policymakers, and industry practitioners** to address the emerging opportunities, constraints, and future pathways in the aquaculture sector.

The seminar sought to align its goals with the broader national vision of **Viksit Bharat@2047**, focusing on the transformation of the aquaculture sector into a sustainable and innovation-driven entrepreneurial ecosystem. Recognizing the critical role that aquaculture plays in **employment generation, rural development, and export growth**, the seminar was designed to create a platform for knowledge exchange, policy deliberation, and strategic collaboration.

The key objectives of the seminar were as follows:

### 1. To Promote Awareness and Understanding of Aqua Entrepreneurship

- To enhance awareness among students, researchers, and entrepreneurs about the vast business potential in the aquaculture sector.
- To highlight the role of aquaculture in achieving economic self-reliance and sustainable livelihoods.

### 2. To Facilitate Academic–Industry–Policy Dialogue

- To bring together academicians, entrepreneurs, policymakers, and financial institutions to deliberate on contemporary challenges in aquaculture.
- To identify areas where collaborative research and policy support can enhance the competitiveness of the aquaculture industry.

### 3. To Explore Financial, Marketing, and Export Opportunities

- To examine various models of financial inclusion, market access, and institutional support for aquapreneurs.
- To discuss the role of government schemes, subsidies, and export promotion councils in strengthening the global presence of Indian aquaculture products.

#### 4. To Encourage Innovation and Technological Advancement

- To showcase innovative practices, digital tools, and technology-driven solutions in aquaculture and fisheries.
- To promote research and development in areas such as feed formulation, disease management, and sustainable farming methods.

#### 5. To Foster Skill Development and Youth Empowerment

- To emphasize the importance of capacity building and entrepreneurship education for rural and coastal youth.
- To encourage higher education institutions to integrate aquaculture entrepreneurship into academic and extension programs.

#### 6. To Address Environmental and Sustainability Challenges

- To deliberate on issues related to climate change, water management, and environmental degradation in aquaculture.
- To advocate for sustainable, eco-friendly, and climate-resilient aquaculture practices in line with the **UN Sustainable Development Goals (SDGs)**—particularly SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), and SDG 14 (Life Below Water).

#### 7. To Develop Policy Recommendations

- To formulate actionable policy suggestions that can help strengthen Andhra Pradesh's aquaculture ecosystem.
- To provide a framework for integrating entrepreneurship, innovation, and sustainability into the state's blue economy strategy.

In essence, the seminar sought not only to discuss academic insights but also to generate **practical recommendations** for industry stakeholders and government bodies, thereby contributing to the realization of **Vikasith Andhra Pradesh and Atmanirbhar Bharat**.

### **III. THEMES AND SUB-THEMES OF THE SEMINAR**

The **Two-Day ICSSR–SRC Sponsored National Seminar on “Aqua Entrepreneurship: Opportunities and Challenges for Vikasith Andhra Pradesh”** was designed around six broad **thematic areas** that reflect the multidisciplinary nature of aquaculture and its linkages with entrepreneurship, sustainability, finance, and policy.

These themes and sub-themes were carefully framed to encourage academic discussion, industry interaction, and policy-oriented deliberations that can collectively contribute to strengthening Andhra Pradesh’s position as a leader in aquaculture and the blue economy.

#### **Theme 1: Entrepreneurial Potential in Aquaculture**

This theme focused on exploring entrepreneurship as a driving force for innovation, employment generation, and sustainable growth within the aquaculture sector.

##### **Sub-Themes:**

- Emerging business models in the blue economy
- Promoting innovation and start-up ecosystems in aquaculture
- Enterprise development in inland and coastal fisheries
- Value addition, branding, and export-oriented aquaculture enterprises

#### **Theme 2: Finance and Market Access for Aquapreneurs**

This theme examined the importance of access to finance, institutional credit, and market linkages for sustainable aquaculture ventures.

##### **Sub-Themes:**

- Financial inclusion and institutional credit for aquapreneurs
- Government schemes, insurance, and subsidy support mechanisms
- Strengthening domestic markets and global export linkages
- Role of cooperatives, SHGs, and producer organizations in aquaculture trade

### **Theme 3: Skill Development and Youth Empowerment**

Recognizing the importance of human capital in aquaculture, this theme addressed skill-building, training, and entrepreneurship education for rural and coastal youth.

#### **Sub-Themes:**

- Capacity building and vocational education in aquaculture
- Empowering rural and coastal youth through entrepreneurship programs
- Academic-industry partnerships for skill enhancement
- Promoting aquaculture as a sustainable livelihood opportunity

### **Theme 4: Innovations in Aquaculture Practices**

Innovation being the cornerstone of sustainable aquaculture, this theme emphasized new technologies, research, and digital transformation in aqua farming.

#### **Sub-Themes:**

- Advanced farming technologies and digital monitoring systems
- Best practices in hatchery, feed, and disease management
- Research and development in species diversification
- Role of biotechnology in sustainable aquaculture

### **Theme 5: Sustainability and Environmental Management**

Sustainability is crucial to ensure the long-term viability of the aquaculture sector. This theme discussed climate-resilient and eco-friendly aquaculture practices.

#### **Sub-Themes:**

- Eco-friendly production models and water conservation techniques
- Climate adaptation and resilience in aquaculture
- Waste management, pollution control, and resource optimization
- Environmental policy frameworks and governance

## Theme 6: Policy Support and Export Opportunities

This theme explored the policy ecosystem that governs aquaculture and its linkages with international trade.

### Sub-Themes:

- National and State-level aquaculture policies
- Enhancing export competitiveness and global trade participation
- Role of APEDA, MPEDA, and other export promotion bodies
- Building public-private partnerships for sustainable aquaculture growth

Each theme was represented by technical sessions, research paper presentations, and interactive discussions aimed at producing **research-backed recommendations** for the development of an integrated and sustainable **Aqua Entrepreneurship ecosystem** in Andhra Pradesh.

## IV. INAUGURAL SESSION AND KEY PROCEEDINGS

The **Inaugural Session** of the *Two-Day ICSSR–SRC Sponsored National Seminar on “Aqua Entrepreneurship: Opportunities and Challenges for Vikasith Andhra Pradesh”* was held on **16th October 2025** at **S.C.I.M. Government College (Autonomous), Tanuku**. The session commenced at **10:00 a.m.** in the college seminar hall amidst an atmosphere of academic enthusiasm and collaborative spirit.

The program began with a **prayer and lighting of the ceremonial lamp**, symbolizing enlightenment through knowledge. The dais was graced by eminent dignitaries from academia, industry, and government sectors.



## Dignitaries on the Dais

- **President:** Sri Ch. Edukondalu Garu, Principal, S.C.I.M. Government College (A), Tanuku
- **Chief Guest:** Prof. Prasanna Sri Garu, Hon'ble Vice-Chancellor, Adikavi Nannayya University, Rajamahendravaram (*unable to attend due to prior commitments; message conveyed through her office*)
- **Guest of Honour:** Prof. P. Anil Kumar Garu, Principal, Andhra Pradesh State Council of Higher Education (APSCHE), Vijayawada
- **Seminar Director:** Dr. I.V. Narayana, Assistant Professor of Commerce, S.C.I.M. Government College (A), Tanuku
- **Keynote Speaker:** Prof. J. Chandra Prasad Garu, Head, Department of Commerce, Adikavi Nannayya University, Rajamahendravaram
- **Distinguished Guests:**
  - Dr. Rammohan Rao Garu, Retd. Deputy Director, Department of Fisheries, A.P.
  - PROF.G.VIJAYA BHARATHI Department of Commerce Yogi Vemana University Kadapa, Andhra Pradesh
  - Sri Danthuluri Venu Garu, CEO, AquaEx India, Aqua Entrepreneur
  - Sri Venkat Garu, CEO, DAKH Biotech, Aqua Entrepreneur
  - Prof. P. Ramachandra Gopal Garu, Professor, NIT Warangal
  - Prof. Venkateswara Rao Garu, Central University, Bilaspur
  - Dr. K. Rajeswara Rao Garu, Head–Marketing, Nexzen Feeds Pvt. Ltd.

## Welcome Address

Dr. I. V. Narayana, Seminar Director, delivered the **welcome address**, highlighting the significance of aquaculture in Andhra Pradesh's economy and the role of aqua entrepreneurship in promoting innovation, sustainability, and rural empowerment. He emphasized the challenges arising from global trade restrictions, environmental shifts, and technological gaps, urging the academic community to develop actionable strategies and policy recommendations for the sector's sustainable growth.



## Principal's Address



Sri Ch. Edukondalu Garu, Principal and Chairperson of the Seminar, expressed his appreciation to **ICSSR–Southern Regional Centre, Hyderabad**, for sponsoring this timely academic event. He reiterated the importance of integrating research, entrepreneurship, and community engagement to strengthen aquaculture-based livelihoods and enhance Andhra Pradesh's contribution to India's Blue Economy.

## Keynote Address

Prof. **J. Chandra Prasad** Rtd Principal DNR College-Bhimavaram-AP delivered an enlightening **keynote address**,

focusing on the concept of “*Aquapreneurship*” as a bridge between science and business. He stressed the need for a multi-stakeholder approach involving academia, government, and industry to overcome challenges related to finance, export competitiveness, and environmental sustainability.



## Guest of Honour Address

Prof. **P. Anil Kumar Garu**, Principal, APSCHE, delivered the **Guest of Honour Address**,



commending the Department of Commerce for organizing a seminar on such a crucial theme. He elaborated on the government's focus on capacity building, skill development, and digital transformation in fisheries and aquaculture under *Viksit Bharat@2047*, encouraging higher educational institutions to act as catalysts for innovation and local enterprise development.

### Special Addresses by Industry Experts

Industry experts, including **Sri Venu Dantuluri (AQUAEX INDIA)** and **Sri Venkat (DAKH BIOTECH)**, shared valuable insights into the evolving dynamics of the aquaculture business ecosystem. They highlighted the importance of **technology adoption, global networking, and sustainable value chains**, calling for academia–industry collaborations to nurture a new generation of “Aquapreneurs.”

### Release of Seminar Souvenir

The **Seminar Souvenir** was formally released by the dignitaries, marking the official inauguration of the academic sessions. The souvenir included research abstracts, invited messages, and thematic notes reflecting diverse perspectives on aquaculture entrepreneurship.



## Vote of Thanks

The inaugural session concluded with a **Vote of Thanks** proposed by **Smt. A. Maruthi Devi Chowdary**, Head, Department of Commerce, S.C.I.M. Government College (A), Tanuku. She expressed gratitude to all the guests, participants, and organizing committee members for their cooperation and support in making the seminar possible.

The session ended with the **National Anthem**, followed by a short **cultural presentation** that celebrated the spirit of Andhra Pradesh's rich aquatic and agricultural heritage.







## DAY WISE AND TECHNICAL SESSION WISE DETAILS

### Technical Session – 1

#### Theme: Entrepreneurial Potential in Aquaculture

|                          |                                                                                                                                                                                                                                                               |                                                                                                                                             |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Chair                    | <b>1) Prof.Ramachandra Gopal</b> , Department of Management Studies,<br>National Institute of Technology (NIT) Warangal<br><br><b>2) Dr.G.Srinivasa Rao, Assistant Professor of Commerce</b> , Dr. V.S.<br>Krishna Govt Degree College, Visakhapatnam(Dt), AP |                                                                                                                                             |
| Dr. K. Swarupa<br>Rani   | SCHVPMR Govt.<br>Degree College<br>Ganapavaram<br>9949971544 Email ID:<br>kantamswarupa@gmail.<br>com                                                                                                                                                         | Entrepreneurial Potential in Shrimp Culture<br>through its Highest Linkages: A case Study<br>in West Godavari District of Andhra<br>Pradesh |
| Dr.Varam<br>Krishnaveni  | Department of<br>Commerce,<br>Government College for<br>Men (A), Kadapa<br>krishnavenivaram515@<br>gmail.com                                                                                                                                                  | Aquapreneurship in India: Emerging<br>Opportunities and Sustainable Challenges                                                              |
| Dr. B. Narayana<br>Rao   | Lecturer in Economics,<br>SRR & CVR Govt.<br>Degree College (a),<br>Vijayawada.                                                                                                                                                                               | Entrepreneurial Potential in Aquaculture:<br>Focus on Andhra Pradesh                                                                        |
| Dr Geddada Arun<br>Kumar | Dr V S Krishna Govt<br>Degree and PG College<br>Autonomous<br>Visakhapatnam                                                                                                                                                                                   | Entrepreneurial Prospects in Aquaculture:<br>A Driver of Rural Blue Economic<br>Development.                                                |
| Rapporteurs Report       | <b>Theme of the Technical Session – 1: <i>Entrepreneurial Potential in Aquaculture</i></b>                                                                                                                                                                    |                                                                                                                                             |

**Date:** 16th October 2025

**Time:** 11:45 AM – 1:15 PM

**Chairpersons:**

- **PROF.RAMACHANDRA GOPAL** Department Of Management Studies, National Institute Of Technology (Nit) Warangal
- **Dr. G. Srinivasa Rao**, Assistant Professor of Commerce, Dr. V.S. Krishna Govt. Degree College (A), Visakhapatnam

The first technical session on “*Entrepreneurial Potential in Aquaculture*” explored the emerging opportunities, challenges, and innovations in the field of aqua entrepreneurship, with special reference to Andhra Pradesh’s thriving aquaculture sector.

**Dr. Varam Krishnaveni** (Government College for Men (A), Kadapa) discussed “*Entrepreneurial Potential in Shrimp Culture through its Highest Linkages – A Case Study in West Godavari District of Andhra Pradesh,*” emphasizing the importance of forward and backward linkages for profitability and sustainability.

**Dr. B. Narayana Rao** (SRR & CVR Govt. Degree College (A), Vijayawada) presented insights on “*Aquapreneurship in India: Emerging Opportunities and Sustainable Challenges,*” highlighting policy support and skill-based interventions required for rural aquapreneurs.

**Dr. Geddada Arun Kumar** (Dr. V.S. Krishna Govt. Degree and P.G. College (A), Visakhapatnam) elaborated on “*Entrepreneurial Potential in Aquaculture: Focus on Andhra Pradesh,*” underscoring the need for innovation, capacity building, and local-level entrepreneurship models.

**Dr. K. Swarupa Rani SCHVPMR Govt. Degree College Ganapavaram** presented on *“Entrepreneurial Prospects in Aquaculture: A Driver of Rural Blue Economic Development,”* focusing on rural employment, women empowerment, and financial inclusion through aquaculture ventures.

The session generated active discussion on integrating modern technology, marketing systems, and training initiatives for young aquapreneurs. The Chairpersons appreciated the quality of research presented and recommended the establishment of incubation support systems and government–industry linkages to promote sustainable aquaculture entrepreneurship.

**Rapporteur:**

***Dr. B.P. Narasa Reddy, Associate Professor of Commerce, Govt. Degree College, Ravulapalem, Kona Seema (Dt), AP***



## Technical Session-2

### Theme: Finance and Market Access for Aquapreneurs

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                 |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Chair :                                         | <b>Dr.P.RAMMOHANA RAO</b> , Dy.Director of Fisheries(Rtd), Govt. of AP<br>Sun Rise Aqualabs ,Kakinada, Andhra Pradesh                                                                                                                                                                                                                                                                            |                                                                                                                                 |
| Dr. I. Sai Prasad,<br>M.B.A., M. Com.,<br>Ph.D. | Associate Professor, Department of<br>Management Studies S.V.K.P &<br>Dr.K.S.Raju Arts and Science College (A)<br>E-mail: isaiprasad77@gmail.com                                                                                                                                                                                                                                                 | Aqua Entrepreneurship –<br>Financial Inclusion and<br>Institutional Support in<br>Andhra Pradesh                                |
| Mr. M. Kishore                                  | Lecturer in Commerce S.G.A.,<br>Government Degree College(A),<br>Yellamanchili.                                                                                                                                                                                                                                                                                                                  | Credit Access and Financial<br>Inclusion of Fishers in<br>Andhra Pradesh: Challenges<br>and Opportunities                       |
| Mr. V. Ramesh<br>Krishna                        | Lecturer, Department of Commerce,<br>Government Arts College, Rajahmundry<br>rameshkrishna.v@gcrjy.in                                                                                                                                                                                                                                                                                            | Institutional Credit and<br>Financial Inclusion for<br>Aquapreneurs: Pathways to<br>Sustainable Blue Economy<br>Growth in India |
| Anju P B,                                       | St.Thomas College (Autonomous),<br>Thrissur (Affiliated to University of<br>Calicut)                                                                                                                                                                                                                                                                                                             | Financial Inclusion and<br>Credit Accessibility among<br>Aquapreneurs in Kerala:<br>Opportunities and<br>Challenges             |
| Rapporteurs<br>Report                           | <b>Theme of the Technical Session – 2: <i>Finance and Market Access for Aquapreneurs</i></b><br><b>Date: 16th October 2025</b><br><b>Time: 2:00 PM – 3:30 PM</b><br><b>Chairpersons:</b> <ul style="list-style-type: none"> <li><b>Dr. P. Rammohana Rao</b>, Retd. Deputy Director of Fisheries,<br/>Govt. of Andhra Pradesh &amp; Managing Director, Sun Rise<br/>Aqualabs, Kakinada</li> </ul> |                                                                                                                                 |

The second technical session on “*Finance and Market Access for Aquapreneurs*” focused on the critical role of financial inclusion, institutional credit, and market linkages in promoting sustainable aquaculture entrepreneurship in India.

**Mr. M. Kishore** (Lecturer in Commerce, S.G.A. Government Degree College (A), Yellamanchili) presented his paper on “*Aqua Entrepreneurship – Financial Inclusion and Institutional Support in Andhra Pradesh.*” He emphasized the importance of government schemes, cooperative finance, and microcredit facilities in enabling small-scale aquapreneurs to expand their businesses and improve production efficiency.

**Mr. V. Ramesh Krishna** (Government Arts College, Rajahmundry) discussed “*Credit Access and Financial Inclusion of Fishers in Andhra Pradesh: Challenges and Opportunities.*” His presentation highlighted gaps in institutional financing and the need for simplified lending mechanisms to reach grassroots-level fish farmers.

**Ms. Anju P. B.** (St. Thomas College (Autonomous), Thrissur) presented a paper on “*Institutional Credit and Financial Inclusion for Aquapreneurs: Pathways to Sustainable Blue Economy Growth in India.*” She underlined the necessity of integrating banking services with digital financial tools and capacity-building initiatives to ensure inclusive economic participation.

**Dr. M. Jayasree** (University of Kerala, Trivandrum) delivered insights through her paper “*Financial Inclusion and Credit Accessibility among Aquapreneurs in Kerala: Opportunities and Challenges.*” She discussed regional variations in credit access and suggested strengthening NABARD and cooperative banking interventions for the aquaculture sector.

The Chairpersons commended the presenters for their insightful contributions and stressed that financial empowerment, access to

institutional credit, and market development are the pillars of a thriving aquapreneurial ecosystem. They also highlighted the role of insurance, fintech innovations, and government policy reforms in enhancing the financial resilience of the aquaculture sector.

The session concluded with an engaging interaction between participants and experts, leading to valuable recommendations for policymakers to simplify credit access and promote market-driven sustainability.

**Rapporteur:**

**Smt G.Indira Devi**, Lecturer in Commerce, S.C.I.M. Govt. College (A),  
Tanuku



### Technical Session – 3

#### Theme: Skill Development and Youth Empowerment

|                       |                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Chair :               | <p><b>Dr. P. Venugopal</b>, Associate Professor of Commerce, Govt. Degree College, Nagari, Chittoor(Dt), AP</p> <p><b>Dr. M. Shanmukha Rao</b>, Principal, Govt Junior College, Rajam, Vijayanagaram (Dt), AP</p>                                                                                                                                              |                                                                                                                          |
| Dr. Muralidhar Dunna, | Lecturer in Commerce Dr. V.S.Krishna Govt. Degree & PG College (Autonomous) Visakhapatnam Dist muralib4u5@gmail.com                                                                                                                                                                                                                                            | From Nets to New Horizons: Capacity Building and Vocational Training for Youth Empowerment                               |
| Aksa Jose             | Research scholar, Department of Economics St Thomas College (Autonomous), Thrissur, Kerala aksajose183@gmail.com                                                                                                                                                                                                                                               | Empowering Rural Youth through Aquaculture: A Study on Skill Development and Entrepreneurship under PMMSY                |
| Revathy C. R          | ICSSR Doctoral Research Fellow, Department of Economics, St.Thomas College (Autonomous) affiliated to University of Calicut, Thrissur, Kerala,                                                                                                                                                                                                                 | Aquaculture as a Sustainable Livelihood Option: Empowering Rural Youth in Kerala                                         |
| Dr. Anil Kumar Akkala | Assistant Professor, School of Business, Aditya University, Surampalem.                                                                                                                                                                                                                                                                                        | Empowering the Blue Economy: Assessing Government Efforts to Foster Aqua-Entrepreneurship among Gen Z in Andhra Pradesh. |
| Rapporteurs Report    | <p><b>Theme of the Technical Session – 3: Skill Development and Youth Empowerment</b></p> <p><b>Date:</b> 16th October 2025</p> <p><b>Time:</b> 03:40 PM – 05:15 PM</p> <p><b>Chairpersons:</b></p> <ul style="list-style-type: none"> <li><b>Dr. P. Venugopal</b>, Associate Professor of Commerce, Govt. Degree College, Nagari, Chittoor(Dt), AP</li> </ul> |                                                                                                                          |

- **Dr. M. Shanmukha Rao**, Principal, Govt Junior College, Rajam, Vijayanagaram (Dt), AP

The third technical session on “*Skill Development and Youth Empowerment*” highlighted the importance of enhancing the capacities of rural youth and students to engage in aquaculture-based entrepreneurship and sustainable livelihood ventures.

**Ms. Aksa Jose** (Research Scholar, Department of Economics, St. Thomas College (Autonomous), Thrissur, Kerala) presented her paper “*From Nets to New Horizons: Capacity Building and Vocational Training for Youth Empowerment.*” She emphasized that structured training, mentorship, and hands-on exposure to aquaculture technologies can transform unemployed rural youth into successful aquapreneurs.

**Ms. Revathy C. R.** (ICSSR Doctoral Research Fellow, St. Thomas College (Autonomous), Thrissur) discussed “*Empowering Rural Youth through Aquaculture: A Study on Skill Development and Entrepreneurship under PMMSY.*” Her study underlined the role of the *Pradhan Mantri Matsya Sampada Yojana (PMMSY)* in fostering entrepreneurship and providing livelihood opportunities for youth in coastal regions.

**Dr. Anil Kumar Akkala** (Assistant Professor, School of Business, Aditya University, Surampalem) presented on “*Aquaculture as a Sustainable Livelihood Option: Empowering Rural Youth in Kerala.*” He explained how aquaculture initiatives have diversified income sources and contributed to community development through small-scale entrepreneurial models.

**Dr. K. Anusha** (GDC, Amalapuram) elaborated on “*Empowering the Blue Economy: Assessing Government Efforts to Foster Aqua-Entrepreneurship among Gen Z in Andhra Pradesh.*” She highlighted the growing enthusiasm of young professionals toward innovation-driven fish farming and the potential of technology-enabled aquaculture as a youth enterprise.

The Chairpersons appreciated the presenters for addressing key aspects of youth engagement, capacity building, and vocational education. They emphasized the need for integrating aquaculture skill development into higher education curricula, establishing incubation centres, and creating stronger linkages between academia, industry, and government initiatives.

The session concluded with an interactive discussion, where participants shared experiences and proposed actionable strategies to transform youth into catalysts for sustainable aquapreneurship and rural development.

**Rapporteur:**

*Mrs. A.Maruthi Devi Chowdary, Lecturer in Commerce, S.C.I.M. Govt. College (A), Tanuku)*



### Technical Session-4

#### Theme: Innovations in Aquaculture Practices

|                         |                                                                                                                                                                                                                                                                                           |                                                                                                                          |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Chair :                 | <ul style="list-style-type: none"><li>• <b>Prof. G. Vijaya Bharathi</b>, Department of Commerce, Yogi Vemana University, Kadapa, Andhra Pradesh</li><li>• <b>Sri M. Jaganmohan</b>, Deputy Manager, State Bank of India, Tadepalligudem, West Godavari District, Andhra Pradesh</li></ul> |                                                                                                                          |
| Kurra.Kranthi           | Lecturer in Physics, ASD Government Degree College for women (A), Kakinada<br>mkranthikurra@ gmail.com                                                                                                                                                                                    | Smart and Sustainable Aquaculture: Role of Electronic Instrumentation in Eco-Friendly Water Management Strategies        |
| K. Narayana Rao         | Lecturer in Chemistry, Government Degree College, Razole                                                                                                                                                                                                                                  | Development and Application of Novel Nanoparticle-Based Feed Supplements for Enhanced Fish Growth and Disease Resistance |
| P. Arun Kumar, Lecturer | Department of Computer Science, Government Degree College, Kovvur, Andhra Pradesh.                                                                                                                                                                                                        | Digital Twin Technology for Real-Time Simulation of Aquaculture Ponds: A Pathway to Smart Aqua Entrepreneurship          |

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|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Mrs. BATTI SANDHYA | Assistant Professor<br>Department of Management studies, B V C College of Engineering, Palacharla, Rajamahendravaram                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The Applications of AI in Aqua Entrepreneurship |
| Rapporteurs Report | <p><b>Theme of the Technical Session – 4:</b> <i>Innovations in Aquaculture Practices</i></p> <p><b>Date:</b> 17th October 2025</p> <p><b>Time:</b> 10:00 AM – 11:30 AM</p> <p><b>Chairpersons:</b></p> <ul style="list-style-type: none"> <li>• <b>Prof. G. Vijaya Bharathi</b>, Department of Commerce, Yogi Vemana University, Kadapa, Andhra Pradesh</li> <li>• <b>Sri M. Jaganmohan</b>, Deputy Manager, State Bank of India, Tadepalligudem, West Godavari District, Andhra Pradesh</li> </ul> <hr/> <p>The fourth technical session on “<i>Innovations in Aquaculture Practices</i>” focused on technological advancements, smart farming methods, and innovative management techniques that can enhance sustainability, efficiency, and profitability in aquaculture.</p> <p><b>Mr. Kurra Kranthi</b> (Lecturer in Physics, ASD Government Degree College for Women (A), Kakinada) presented a paper titled “<i>Smart and Sustainable Aquaculture: Role of Electronic Instrumentation in Eco-Friendly Water Management Strategies.</i>” He explained the application of electronic sensors and automation systems in monitoring</p> |                                                 |

water quality parameters and improving yield consistency through real-time data analysis.

**Mr. K. Narayana Rao** (Lecturer in Chemistry, Government Degree College, Razole) discussed *“Development and Application of Novel Nanoparticle-Based Feed Supplements for Enhanced Fish Growth and Disease Resistance.”* His presentation emphasized the use of nanotechnology to improve feed efficiency, promote growth, and ensure disease resistance in aquaculture species while minimizing environmental impacts.

**Mr. P. Arun Kumar** (Lecturer, Department of Computer Science, Government Degree College, Kovvur) delivered a presentation on *“Digital Twin Technology for Real-Time Simulation of Aquaculture Ponds: A Pathway to Smart Aqua Entrepreneurship.”* He demonstrated how digital twins can replicate aquaculture systems virtually, allowing predictive analytics and smart decision-making for aqua farmers.

**Mrs. Batti Sandhya** (Assistant Professor, Department of Management Studies, B.V.C. College of Engineering, Rajahmundry) presented on *“The Applications of AI in Aqua Entrepreneurship.”* She elaborated on how Artificial Intelligence tools like machine learning and IoT-based data analytics can optimize resource utilization, predict disease outbreaks, and reduce operational costs in fish farming.

The Chairpersons appreciated the innovative research approaches and emphasized the significance of integrating *science, technology, and entrepreneurship* for the modernization of India’s aquaculture sector. They also recommended creating collaborative platforms between academia, industry, and government agencies to promote

technology-driven entrepreneurship and digital transformation in the blue economy.

The session concluded with an interactive Q&A segment where participants shared insights on implementing technological solutions for sustainable aquaculture practices at both institutional and grassroots levels.

**Rapporteur:**

**Dr.P.Satyanarayana** *Lecturer in Commerce, Government Degree College Kotthapeta*



## Technical Session –5

### Theme: Sustainability and Environmental Management

|                                        |                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                    |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Chair :                                | <b>PROF.N.UDAYA BHASKER Head,Dept of commerce &amp; management studies Adikavi Nannaya University Rajamahendravaram, Andhra Pradesh</b>                                                                                                                                                                                                                                                     |                                                                                                                    |
| Dr. P. Sujatha                         | Government Degree College, Narasapuram                                                                                                                                                                                                                                                                                                                                                      | <b>(Paper No. 2)</b> Eco-Friendly Practices and Sustainable Management in Aquaculture                              |
| Dr. P. Aravind Swamy                   | Lecturer in Economics, RRDS Govt. Degree College, Bhimavram<br>swamy.pa2506@gmail.com                                                                                                                                                                                                                                                                                                       | Present State of Aquaculture in Andhra Pradesh: Need for Eco-Friendly Production Models Towards Sustainable Growth |
| Dr. K Santhi Babu,Lecturer in Commerce | Government Degree College, Buttaigudem, Eluru district, Andhra Pradesh, India,                                                                                                                                                                                                                                                                                                              | Eco-Friendly Production Models and Water Conservation in Aqua Farming                                              |
| L. Narasimha Rao, Librarian            | RRDS GOVT. Degree College, Bhimavaram,<br>lakkoju1971@gmail.com                                                                                                                                                                                                                                                                                                                             | The Role of Aquaculture in Promoting Environmental Sustainability and Food Security in Society                     |
| Rapporteurs Report                     | <b>Theme of the Technical Session – 5: Sustainability and Environmental Management</b><br><b>Date:</b> 17th October 2025<br><b>Time:</b> 11:45 AM – 1:15 PM<br><b>Chairpersons:</b> <ul style="list-style-type: none"> <li>● <b>Prof. N. Udaya Bhasker</b>, Head, Department of Commerce &amp; Management Studies, Adikavi Nannaya University, Rajamahendravaram, Andhra Pradesh</li> </ul> |                                                                                                                    |

- **Dr. P. Sujatha**, Lecturer in Commerce, Government Degree College, Narasapuram, Andhra Pradesh

The fifth technical session on “*Sustainability and Environmental Management*” focused on promoting eco-friendly aquaculture practices, efficient resource management, and policy-level interventions to ensure the long-term environmental and economic viability of aquaculture in Andhra Pradesh and beyond.

**Dr. P. Aravind Swamy** (Lecturer in Economics, RRDS Government Degree College, Bhimavaram) presented his paper on “*Eco-Friendly Practices and Sustainable Management in Aquaculture.*” He emphasized the role of scientific water management, organic feed usage, and reduced chemical dependency in achieving ecological balance and sustainable production.

**Dr. K. Santhi Babu** (Lecturer in Commerce, Government Degree College, Buttaigudem, Eluru District) delivered a paper titled “*Present State of Aquaculture in Andhra Pradesh: Need for Eco-Friendly Production Models Towards Sustainable Growth.*” His presentation highlighted the environmental challenges caused by intensive shrimp culture and suggested community-based, low-impact aquaculture models.

**Mr. L. Narasimha Rao** (Librarian, RRDS Government Degree College, Bhimavaram) shared insights through his paper “*Eco-Friendly Production Models and Water Conservation in Aqua Farming.*” He elaborated on innovative water recycling methods and resource

conservation practices for sustainable aqua farm management.

**Dr. D. Srinivasa Rao** (DNR College (A), Bhimavaram) presented his study on “*The Role of Aquaculture in Promoting Environmental Sustainability and Food Security in Society.*” He discussed how sustainable aquaculture directly contributes to food security and supports multiple UN Sustainable Development Goals (SDGs), particularly SDG 2 (Zero Hunger) and SDG 14 (Life Below Water).

The Chairpersons appreciated the presenters for their practical insights and research contributions. Prof. Udaya Bhasker emphasized that sustainability should be central to all aquaculture development strategies, integrating economic viability with ecological preservation. Dr. P. Sujatha underscored the importance of environmental education, awareness campaigns, and policy frameworks to encourage responsible aquaculture practices.

The session concluded with valuable interactions and recommendations focusing on integrating **climate resilience, water management, and green technologies** to strengthen the sustainability of the aquaculture sector in Andhra Pradesh.

**Rapporteur:**

**Dr.O.Achyutharama Kishore**, Assistant Professor of Commerce, SRR&CVR Govt Degree Colleg, Vijayawada, AP



### Technical Session-6

#### Theme of the: Policy Support and Export Opportunities

|                            |                                                                                                                                                                                                                                                                                             |                                                                                                          |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Chair :                    | <p><b>Dr. M. Venkata Ramanaiah</b>, Assistant Professor of Commerce, S.G. Government Degree College, Pileru, Annamayya District, Andhra Pradesh</p> <p><b>Dr. K. Rajeswara Rao</b>, Head – Marketing, Deepak Nexzen Feeds Pvt. Ltd., Hanuman Junction, Krishna District, Andhra Pradesh</p> |                                                                                                          |
| Dr. K. Siva Prasad         | Government College, Tanuku                                                                                                                                                                                                                                                                  | Overcoming Challenges in Indian Aquaculture Exports to USA under Increased Tariffs                       |
| E Nikhila Priya            | Lecturer in Commerce, New Model Government Degree College Pendlimarri<br>nikhila.priya1@gmail.com                                                                                                                                                                                           | National and State-Level Aquaculture Policies                                                            |
| Dr. Sudhakara Rao Bezawada | Lecturer in Economics SRR & CVR Government Degree College (Autonomous), Vijayawada<br>bsr76799@gmail.com                                                                                                                                                                                    | Strengthening Domestic Markets and Export Resilience: An Aquaculture Case Study of Andhra Pradesh, India |
| Miss. RAGI SAHITHI         | Lecturer in Commerce, Government Degree College For Women, Srikalahasthi<br>ragisahithi1106@gmail.com                                                                                                                                                                                       | Regulatory Frameworks for Sustainable Aquaculture: A Policy Analysis of Andhra Pradesh                   |
| Rapporteurs Report         | <p><b>Theme of the Technical Session – 6: Policy Support and Export Opportunities</b></p> <p><b>Date:</b> 17th October 2025</p>                                                                                                                                                             |                                                                                                          |

**Time:** 2:00 PM – 3:30 PM

**Chairpersons:**

- **Dr. M. Venkata Ramanaiah**, Assistant Professor of Commerce, S.G. Government Degree College, Pileru, Annamayya District, Andhra Pradesh
- **Dr. K. Rajeswara Rao**, Head – Marketing, Deepak Nexzen Feeds Pvt. Ltd., Hanuman Junction, Krishna District, Andhra Pradesh

**Rapporteur:**

**Sri. E. M. Hareesh Babu**, Assistant Professor of Commerce, Silver Jubilee Government College (A), Kurnool, Andhra Pradesh

The sixth technical session on “*Policy Support and Export Opportunities*” focused on the crucial role of government policies, regulatory mechanisms, and global trade strategies in strengthening India’s aquaculture export sector and ensuring sustainable market growth.

**Dr. K. Siva Prasad** (Government College, Tanuku) presented his paper titled “*Overcoming Challenges in Indian Aquaculture Exports to USA under Increased Tariffs.*” He elaborated on how tariff escalations and non-tariff barriers by importing nations have impacted shrimp exports from India, particularly from Andhra Pradesh, and emphasized the need for policy interventions to enhance global competitiveness.

**Ms. E. Nikhila Priya** (Lecturer in Commerce, New Model Government Degree College, Pendlimarri) discussed “*National and State-Level Aquaculture Policies.*” She highlighted various initiatives of the Government of India

and the State of Andhra Pradesh aimed at promoting sustainable aquaculture, infrastructure development, and farmer welfare under schemes like *PMMSY* and *FIDF*.

**Dr. Sudhakara Rao Bezawada** (Lecturer in Economics, SRR & CVR Government Degree College (A), Vijayawada) delivered a presentation on “*Strengthening Domestic Markets and Export Resilience: An Aquaculture Case Study of Andhra Pradesh, India.*” He emphasized the need for building robust domestic markets, promoting value-added exports, and developing logistics and cold-chain infrastructure to reduce export dependency risks.

**Ms. Ragi Sahithi** (Lecturer in Commerce, Government Degree College for Women, Srikalahasthi) presented on “*Regulatory Frameworks for Sustainable Aquaculture: A Policy Analysis of Andhra Pradesh.*” She discussed the existing legal and environmental policies that guide aquaculture operations, stressing the importance of regulatory compliance, farmer education, and ecosystem protection.

The Chairpersons commended the researchers for their analytical and policy-driven presentations. **Dr. Ramanaiah** underscored the importance of integrating public-private partnerships to promote sustainable aquaculture exports, while **Dr. Rajeswara Rao** emphasized industry collaboration, technology adoption, and adherence to international quality standards to maintain India’s competitive edge in the global market.

The session concluded with an interactive discussion highlighting key recommendations, including enhancing government export incentives, strengthening regulatory mechanisms, improving market intelligence systems, and

|  |                                                                                                                                                                                                                                     |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>developing farmer-level awareness on international trade practices.</p> <p><b>Rapporteur:</b></p> <p><b>Sri. E. M. Hareesh Babu</b><br/> Assistant Professor of Commerce<br/> Silver Jubilee Government College (A), Kurnool</p> |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Valedictory Session

The **Valedictory Session** of the *Two-Day ICSSR–SRC Sponsored National Seminar on “Aqua Entrepreneurship: Opportunities and Challenges for Vikasith Andhra Pradesh”* was held on **17th October 2025**, from **3:30 PM to 5:00 PM**, at the **Seminar Hall, S.C.I.M. Government College (Autonomous), Tanuku**. The session marked the formal conclusion of two days of intensive academic and policy-oriented deliberations on the future of aquaculture and aqua entrepreneurship in Andhra Pradesh and India.



The session began with a warm welcome by **Smt. A. Maruthi Devi Chowdary**, Head, Department of Commerce, who briefly summarized the key highlights and outcomes of the seminar. She acknowledged the unwavering support from ICSSR–Southern Regional Centre,

Hyderabad, and expressed gratitude to all the delegates, paper presenters, and participants for their enthusiastic involvement.

### **Dignitaries on the Dais**

- ❖ **Chief Guest:** Prof. N. Udaya Bhaskar Garu, Head, Department of Commerce & Management Studies, Adikavi Nannayya University, Rajamahendravaram
- ❖ **Guest of Honour:** Prof. J. Chandra Prasad, Rtd Principal DNR College - Bhimavaram-AP



### Special Guests:

- Sri.M.Jaganmohan, Dy.Manager -State Bank of India, Tadepalligudem, WG (Dt), AP
- Prof.Venkateswararao Bhanothu ,School of Commerce & Management Studies, Gurugasidas viswavidyalaya (Central University) Bilaspur,Chhattisgarh
- Dr. M. Venkata Ramanaiah, Assistant Professor of Commerce, S.G. Govt Degree College, Pileru, Annnamayya (Dt), AP.
- Dr. B.P. Narasa Reddy, Associate Professor of Commerce, Govt. Degree College, Ravulapalem, Kona Seema (Dt), AP.
  - **Presided by:** Sri Ch. Edukondalu Garu, Principal, S.C.I.M. Government College (A), Tanuku
  - **Seminar Director:** Dr. I. V. Narayana, Assistant Professor, Department of Commerce



### Proceedings of the Session

The **Seminar Director, Dr. I. V. Narayana**, presented a detailed report on the two-day proceedings of the seminar. He outlined that the event witnessed **six technical sessions, 36 paper presentations**, and the participation of over **120 delegates** from various states including Andhra Pradesh, Telangana, Karnataka, Tamil Nadu, Kerala, and Odisha. The discussions primarily focused on the themes of **entrepreneurship, innovation, sustainability, and policy intervention** in the aquaculture sector.

He highlighted that the seminar served as a **knowledge-sharing platform** connecting academic institutions, industry leaders, and policymakers. The deliberations generated practical insights and recommendations for strengthening **Aqua Entrepreneurship**, improving **financial access**, and addressing **environmental sustainability** within the aquaculture industry.

### Chief Guest's Address

Prof. **N. Udaya Bhaskar Garu**, Adikavi Nannayya University in his **valedictory address**, commended the organizing team for successfully conducting a seminar of national importance in an institution located at the heart of Andhra Pradesh's aquaculture region. He emphasized that aqua entrepreneurship holds tremendous potential to uplift rural livelihoods, promote innovation, and drive inclusive economic growth. He also urged higher education institutions



to undertake **applied research, capacity-building programs,** and **policy advocacy** to support the aquaculture value chain from production to export.

He appreciated the focus on practical recommendations emerging from the sessions and expressed confidence that the outcomes would serve as valuable input for **policy formulation** and **academic collaborations**.

### **Guest of Honour's Remarks**

Prof. **J. Chandra Prasad Garu**, Rtd Principal DNR College -Bhimavaram-AP appreciated the seminar's initiative in linking academic research with real-world industry needs. She underlined the importance of integrating **commerce and management principles** into aquaculture to improve efficiency, market orientation, and global competitiveness. She also highlighted the need for fostering **entrepreneurial culture among students and farmers**, encouraging them to innovate within the framework of sustainability.

### **Special Addresses**

Industry leaders **Sri Venkat Garu (Dakh Biotech)** and **Dr. Rammohan Rao Garu (Fisheries Department)** shared valuable perspectives from the field. They discussed issues such as **disease management, input cost challenges,** and **export diversification**, stressing the role of academia in finding practical solutions for aqua farmers and small-scale entrepreneurs.

**Prof.Venkateswararao Bhanothu** ,School of Commerce & Management Studies, Gurugasidas viswavidyalaya (Central University) Bilaspur,Chhattisgarh spoke on the integration of **technology, data analytics, and entrepreneurship education** to shape the next generation of aquapreneurs. They encouraged students and young researchers to engage in problem-solving research and contribute toward building a resilient blue economy.

## **Recommendations and Outcomes**

The Two-Day ICSSR–SRC Sponsored National Seminar brought together academicians, researchers, policymakers, aqua entrepreneurs, and industry experts to deliberate on the emerging opportunities and challenges in aquaculture development. The following recommendations and outcomes were drawn from the deliberations:

### **1. Cold Storage and Supply Chain Management**

- Establish modern cold storage and logistics infrastructure to strengthen frozen and export markets.
- Develop a transparent and efficient supply chain system to ensure fair price realization and minimize post-harvest losses.

### **2. Financial Inclusion and Institutional Lending**

- Strengthen institutional credit mechanisms and enhance financial literacy among aquaculture farmers.
- Reduce the influence of intermediaries in financial and marketing activities to ensure that benefits reach producers directly.

### **3. Farmer Welfare and Safety**

- Ensure safety, minimum wage, and social security measures for aquaculture workers.
- Provide electricity subsidies and infrastructure support for aquaculture farmers, particularly in rural and coastal regions.

### **4. Education and Research in Aquaculture**

- Introduce aquaculture as a major subject in universities and colleges, emphasizing entrepreneurship and innovation.
- Develop short-term certification and value-added programs to enhance student employability.
- Strengthen the Andhra Pradesh Fisheries University as a center for applied research and technological advancement.
- Encourage doctoral and interdisciplinary research integrating aquaculture, management, and environmental sciences.

### **5. Export Policy and Industry Regulation**

- Formulate flexible export policies to improve global competitiveness of shrimp and fish exports.
- Strengthen quality control mechanisms and regulate the use of antibiotics, feed additives, and fertility enhancers through strict government oversight.

## 6. Farmer Motivation and Women Empowerment

- Conduct regular motivation, awareness, and capacity-building programs through coordinated government–industry–academic partnerships.
- Encourage women’s participation in aquaculture through Self-Help Groups (SHGs) and provide financial and technical support for women entrepreneurs.
- Promote ornamental and small-scale aquaculture ventures for women’s economic empowerment.

## 7. Promotion of Domestic Consumption

- Launch nationwide awareness programs highlighting the nutritional benefits of fish, shrimp, and other aquatic products.
- Involve celebrities and public figures as brand ambassadors to promote seafood consumption.
- Eliminate misconceptions about shrimp consumption and promote the inclusion of other aquatic varieties such as **crab, mussels, and shellfish** in domestic diets.
- Support **inland crab farming initiatives** to diversify aquaculture products and meet growing consumer preference for prawns and similar seafood varieties. This will create alternative livelihood opportunities and reduce pressure on shrimp farming.

## 8. Innovation and Sustainable Practices

- Promote **inland crab farming** as a viable and profitable diversification model alongside prawn culture, especially in freshwater and low-salinity regions. Provide farmers with training, hatchery support, and scientific guidance for sustainable production.
- Encourage integrated aquaculture models combining fish, crab, poultry, and tree farming to optimize land and resource use.
- Introduce plant-based aquaculture feed models and eco-friendly practices for long-term environmental balance.
- Adopt Artificial Intelligence (AI), Internet of Things (IoT), and quantum technologies for real-time pond management, disease detection, and efficiency improvement.

## 9. Government Repository and Data Integration

- Create a centralized digital repository covering farmers, hatcheries, feed producers, and processing units to streamline coordination.
- Develop a “One-Stop Aqua Development Repository” for better data-driven policymaking and monitoring.

## 10. Environmental and Resource Management

- Promote region-specific research on soil, water, and energy management for sustainable aquaculture.
- Establish certified aqua clinics to provide disease diagnosis, water testing, and technical advisory services.
- Encourage **waste-to-value programs**, converting aquaculture waste into protein-rich feed and bio-products.

## Conclusion

The seminar concluded that Andhra Pradesh, the “Aqua Hub of India,” must pursue an inclusive, sustainable, and innovation-driven aquaculture model. Emphasis was placed on **diversification into inland crab farming**, technology adoption, women’s participation, and value-added education. Implementing these measures will enhance productivity, resilience, and sustainability in the aquaculture ecosystem — reinforcing Andhra Pradesh’s leadership in the **Blue Economy** and contributing meaningfully to the vision of **Vikasith Andhra Pradesh and Viksit Bharat @2047**.

## FEEDBACK AND PARTICIPANT REFLECTIONS

Participants expressed satisfaction with the seminar’s organization, thematic relevance, and the quality of scholarly discussions. Many appreciated the **industry–academia interface** facilitated through plenary talks and interactive Q&A sessions.

## VOTE OF THANKS

The **Vote of Thanks** was proposed by **Dr. E.J.Kirnmai**, Member of the Organizing Committee, who extended sincere gratitude to the **ICSSR–SRC**, all dignitaries, resource persons, participants, sponsors, and volunteers.

The session concluded with the **National Anthem**, marking the successful completion of the two-day national seminar. A sense of accomplishment and collaboration prevailed among all participants, reaffirming the collective commitment toward advancing the goals of **sustainable aquaculture and aqua entrepreneurship for a Vikasith Andhra Pradesh**.

## (Annexure – II)

### **Abridged/short Report on the Outcome of the Programme**

**Title:** ICSSR–SRC Sponsored National Seminar on “*Aqua Entrepreneurship: Opportunities and Challenges for Vikasith Andhra Pradesh*”

**Organized by:** Department of Commerce, S.C.I.M. Government College (Autonomous), Tanuku

**Dates:** 16th & 17th October 2025

**Sponsored by:** Indian Council of Social Science Research (ICSSR) – Southern Regional Centre, Hyderabad

#### **1. Programme Overview**

The Department of Commerce, S.C.I.M. Government College (A), Tanuku, organized a **Two-Day ICSSR–SRC Sponsored National Seminar** on “*Aqua Entrepreneurship: Opportunities and Challenges for Vikasith Andhra Pradesh*” on **16th & 17th October 2025**. The seminar brought together a diverse group of participants including **academicians, researchers, aqua entrepreneurs, policymakers, industry leaders, and students** from across India.

The core objective of the seminar was to provide a multidisciplinary platform to deliberate on the **economic, environmental, and policy dimensions of aqua entrepreneurship**, with a special focus on the **Blue Economy** and **Viksit Bharat@2047**.

A total of **470 participants** attended the seminar, representing universities, research institutions, government departments, and aquaculture industries. Around **84 research papers** were received, of which **36 were presented** in four parallel technical sessions covering key themes such as **entrepreneurship potential, sustainability, skill development, innovations, and policy reforms in aquaculture**.

The two-day event included:

- **Inaugural and Valedictory sessions** with eminent academicians and policymakers.
- **Keynote and plenary addresses** by experts from APSCHE, Adikavi Nannayya University, IIT Bombay, NIT, and AquaEx India.

- **Interactive panel discussions** bridging academic research with real-world industry practices.
- **Presentation of scholarly papers** focusing on entrepreneurial innovation, environmental sustainability, and policy interventions in the aquaculture sector.

The seminar received **excellent feedback** from participants, particularly for its focus on current challenges in global trade, environmental sustainability, and the socio-economic impact of aquaculture in Andhra Pradesh.

## 2. Key Outcomes of the Seminar / Conference for Society and Public Policy

The seminar successfully fulfilled its objectives by generating a set of **actionable insights, recommendations, and collaborative ideas** relevant to academia, industry, and public policy. The following are the key takeaways:

### A. Societal and Community Impact

- Enhanced awareness among **farmers, students, and entrepreneurs** regarding the economic potential of the aquaculture sector.
- Encouraged youth and coastal communities to explore **entrepreneurship in aquaculture**, contributing to rural employment and income generation.
- Fostered an understanding of **eco-friendly and sustainable aquaculture practices**, addressing issues such as pollution, disease control, and water management.
- Strengthened the bridge between **higher education institutions and local aqua entrepreneurs** to promote skill-based training and innovation.

### B. Academic and Research Outcomes

- Provided a **research-driven platform** for scholars to share empirical studies on sustainability, market dynamics, and export competitiveness.
- Led to the identification of new **research areas** in climate adaptation, digital aquaculture, and rural entrepreneurship.
- Encouraged interdisciplinary collaboration among departments of **Commerce, Economics, Zoology, and Computer Science** for integrated problem-solving approaches.

### C. Policy and Institutional Recommendations

- Emphasized the need for **financial literacy and credit access** for small and medium aqua entrepreneurs.
- Recommended the development of **cluster-based aquaculture industrial zones** with integrated processing, storage, and marketing facilities.
- Suggested establishing **Aquaculture Incubation and Training Centers** at district levels under state universities for entrepreneurship promotion.
- Advocated for **policy reforms** ensuring minimum support prices, export diversification, and environmental safeguards.
- Highlighted the need to align aquaculture development strategies with the **UN Sustainable Development Goals (SDGs)**—specifically SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), and SDG 14 (Life Below Water).

Overall, the seminar contributed significantly to **knowledge dissemination, capacity building, and policy-oriented research**, benefiting both academic institutions and local aquaculture communities.

### 3. Overall Conclusion / Recommendations

The Two-Day ICSSR–Sponsored National Seminar on “**Aqua Entrepreneurship: Opportunities and Challenges for Vikasith Andhra Pradesh**” successfully brought together academicians, researchers, policymakers, aqua entrepreneurs, and industry professionals to deliberate on the current status, emerging trends, and sustainable pathways of aquaculture in India, particularly in Andhra Pradesh — the “Aqua Hub of India.”

The seminar highlighted that aquaculture is not only a vital contributor to India’s GDP and exports but also a critical driver of **rural employment, food security, and women empowerment**. However, the industry faces challenges such as fluctuating international markets, disease outbreaks, rising input costs, and environmental degradation. To overcome these barriers and to strengthen India’s blue economy, the following conclusions and recommendations were drawn:

## Key Recommendations

### 1. Strengthening Aquaculture Infrastructure

- Establish modern **cold storage and logistics facilities** to ensure quality preservation and timely market access.
- Develop organized **supply chain and distribution networks** for fair pricing and minimal post-harvest loss.

### 2. Financial Inclusion and Institutional Support

- Expand **credit access** through cooperative banks, NABARD, and financial institutions with farmer-friendly lending schemes.
- Promote **financial literacy** among aqua farmers and reduce dependence on intermediaries.

### 3. Promotion of Inland Crab Farming

- Encourage **inland crab farming** as an emerging, sustainable, and high-value aquaculture activity.
- Provide training, technical assistance, and hatchery development to promote diversification beyond shrimp and fish farming.
- This initiative will generate alternative livelihoods and meet the growing domestic preference for prawn-like seafood varieties.

### 4. Education, Research, and Capacity Building

- Introduce **aquaculture and blue economy studies** as academic disciplines in higher education.
- Establish **value-added certificate courses** to build skills in aquaculture management and entrepreneurship.
- Strengthen the **Andhra Pradesh Fisheries University** as a center for advanced research, innovation, and extension services.

### 5. Policy, Regulation, and Export Promotion

- Formulate **flexible and bilateral export policies** to counter international trade restrictions and tariffs.
- Implement strict **regulatory control** over antibiotics, feed, and aquaculture inputs to maintain global standards.

## 6. Sustainability and Environmental Management

- Encourage **eco-friendly aquaculture models** integrating fish, crab, poultry, and tree farming to ensure efficient resource utilization.
- Promote **AI- and IoT-based monitoring systems** for water quality, disease control, and pond management.
- Expand **aqua clinics and waste-to-value programs** to transform by-products into feed or organic fertilizers.

## 7. Empowerment and Inclusive Growth

- Strengthen **women's participation** in aquaculture through SHGs and small-scale entrepreneurship.
- Provide **motivation and training** programs for youth to become “Aquapreneurs,” aligning with *Viksit Bharat 2047*.

## 8. Government Repository and Policy Integration

- Establish a **One-Stop Aqua Development Repository** containing integrated data on farmers, feed units, and processing centers to aid policymaking.

## 9. Domestic Market Promotion

- Launch awareness campaigns to **increase domestic consumption** of fish, shrimp, and crab as healthy protein sources.
- Engage celebrities and public figures as brand ambassadors to promote Indian aquaculture products.

## Conclusion

The seminar concluded that **Aqua Entrepreneurship** is a key pillar for achieving **Vikasith Andhra Pradesh** and contributing to **Viksit Bharat @2047**.

By focusing on diversification (including inland crab farming), sustainability, technological advancement, and inclusive policies, Andhra Pradesh can strengthen its position as a global leader in aquaculture.

The collective implementation of these recommendations will lead to a **resilient, innovative, and environmentally responsible Blue Economy**, ensuring prosperity for rural communities and sustainable growth for the nation.



Dr. I. V. Narayana  
Seminar Director

ICSSR - SRC SPONSORED TWO-DAY

# National Seminar



**AQUA ENTREPRENEURSHIP: OPPORTUNITIES  
AND CHALLENGES FOR VIKASITH  
ANDHRA PRADESH**



16th & 17th October



Start 10:00 AM - 5:00 PM



Conference Hall



## ORGANISED BY

DEPARTMENT OF COMMERCE  
S.C.I.M. GOVT COLLEGE (A)  
TANUKU, WEST GODAVARI (DT)

ANDHRA PRADESH-INDIA

