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Framework for Documenting Farmer and Community Innovations: The ACIC-ASIIC Model (A Case of Gudur, Andhra Pradesh)

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Grassroot farmer and community-led innovations represent the intrinsic creativity and adaptive capacity of rural communities in addressing local farming and livelihood challenges. Lack of systematic documentation and scientific validation limits their scaling and integration into the mainstream of the startup and innovation ecosystem. This study proposes and validates a structured framework for documenting farmer and community innovations, developed and tested under the Atal Community Innovation Centre-Audisankara Innovation and Incubation Centre (ACIC-ASIIC) in Gudur, Andhra Pradesh. The framework aims to institutionalize the documentation, scientific validation, and incubation of local innovations. The paper details the framework's components, the expert opinion survey to validate it, and implications for replication across all Atal Community Innovation Centres (ACICs). The results affirm that a participatory, digitalized, and incubation-linked documentation approach can transform grassroots creativity into scalable, sustainable enterprises.

Keywords: Grassroots innovation, farmer innovation, community documentation, ACIC-ASIIC, Gudur, incubation

Introduction

Rural India through generations of experimentation and local adaptation forms a repository of indigenous knowledge, farmer-led and community-led innovations. Farmers, artisans, and rural entrepreneurs have consistently developed creative solutions to problems in agriculture, aquaculture, energy, and rural livelihoods (Gupta, 2016; National Innovation Foundation, 2022). Despite their potential, such innovations often remain undocumented or under-recognized by formal systems of research and development (Raina, 2019). To bridge this gap, the Atal Community Innovation Centres (ACICs) supported by the Atal Innovation Mission (AIM), NITI Aayog were established focusing majorly on unserved and underserved regions of the country. Among these, the Atal Community Innovation Centre-Audisankara Innovation and Incubation Centre (ACIC-ASIIC) at Audisankara (Deemed-to-be-University), Gudur, Andhra Pradesh, serves as a special purpose vehicle and also act as regional hub for identifying, incubating, networking, documenting and nurturing both farmer and community innovations. This study aims to conceptualize and validate a comprehensive framework for documenting community-based innovations through the *ACIC-ASIIC Model* and to gather expert feedback on its feasibility and scalability.

Review of Literature

The documentation of farmer and grassroots innovations has been emphasized in development research since the 1990s. Gupta (2016) introduced the concept of "Honey Bee" knowledge sharing, advocating for recognition and reward of farmer innovators. The National Innovation Foundation (NIF, 2022) institutionalized mechanisms for scouting and

validating local innovations, creating a national repository of over 300,000 ideas. Despite these efforts, the diffusion and commercialization of such innovations remain limited (Sulaiman & Hall, 2003). Factors include inadequate institutional linkages, absence of standardized documentation templates, and limited community participation (Chambers, 1994; Biggs & Clay, 1981). Studies in agricultural extension further highlight the need for participatory documentation approaches that blend scientific validation with traditional knowledge (Kumar & Sreelakshmi, 2018). Innovation ecosystems such as ACICs offer a unique platform to connect community knowledge with institutional resources. However, literature lacks a replicable, regionally grounded framework for systematic documentation within ACIC settings. Hence, it signifies the current research.

The study seeks the following objectives:

1. To develop a participatory framework for documenting farmer and community led innovations under the ACIC-ASIIC.
2. To validate the framework through opinion from experts and stakeholders in innovation, incubation, and rural development.
3. To assess the feasibility of a developed framework for wider adoption in similar ACIC contexts across India.

Study Area

The Gudur region of Andhra Pradesh is predominant for its aquaculture, agriculture, horticulture and varied coastal livelihood practices. The local farmers and communities are found to develop unique innovations in water management, low-cost aquaculture inputs, and waste recycling. ACIC-ASIIC, supported by AIM, NITI Aayog, functions as a Section 8 company dedicated to fostering rural ecosystems with these local innovations. ACIC-ASIIC operates with a vision to “ignite innovation from the grassroots” focusing on identifying the community based problems and generating the ideas to solve the problems by providing requisite infrastructure for innovation in the unserved / underserved regions or having potential to build innovation ecosystems in various parts of the country. The ACIC-ASIIC provides the best incubation facilities to nurture the ideas, to make prototype equipment and to convert it into start-ups. The Incubator integrates the best of technologies for creating affordable and accessible solutions. The key goal would be to take pre-incubated start-ups from Audisankara Innovation & Incubation Centre (ASIIC) and others from across the region and the nation as well and give them a support system for taking them to the next stage of sustainable rural livelihood.

Framework for Documenting Farmer and Community Innovations -ACIC-ASIIC Model

Based on grassroot experience and theoretical grounding, a framework has been developed for five-stages (Table 1). It integrates participatory documentation with validation, incubation and innovation processes.

Table 1: The ACIC-ASIIC Model Framework

Stage	Component	Key Activities	Expected Output
I. Identification	Community-level reconnoiter	Field trips, participatory rural appraisal (PRA), exhibitions, collaboration with FPOs, FIGs, CIGs	Preliminary list of innovations
II. Documentation	Standardized take down	Use of structured format in capturing problem, solution, process, materials, impact etc.	Innovation dossiers

III. Validation	Technical Appraisal	Collaboration with KVKs, Research stations, agricultural, horticultural, fisheries colleges and other technical experts	Technically validated innovations
IV. Value Addition & Incubation	Iteration	Prototype design, testing and business modeling under ACIC-ASIIC incubation system.	Prototype-to-enterprise conversion
V. Dissemination	Knowledge sharing	Digital repositories, open platforms, innovation fairs and policy briefs	Modular, ingenious solution

This framework ensures inclusivity by engaging marginal farmers, women innovators, and rural youth trained by ACIC-ASIIC.

Methodology

Research Design

A mixed-methods approach was employed to develop a framework with expert validation. The initial framework was designed through field-based observations and participatory interactions in the local communities of Gudur region. Validation was then conducted using a structured Expert Opinion Survey.

Expert Opinion Survey

The survey sought feedback from 45 experts representing agricultural universities, KVKs, Research stations, Agri and allied colleges, AIM stakeholders, NGOs and startups. It aimed to assess the relevance, clarity and scalability of the developed framework.

Instrument Design: A semi-structured questionnaire was developed. It contained five sections:

- **Section A:** Respondent profile
- **Section B:** Awareness and relevance of community innovation documentation
- **Section C:** Assessment of framework components (five-point Likert scale)
- **Section D:** Feasibility and implementation factors
- **Section E:** Open-ended questions for qualitative insights

Data Collection: Experts were contacted via email and through institutional networks. The survey was administered digitally using google form.

Data Analysis: Quantitative data were analyzed using descriptive statistics (mean, standard deviation, and weighted mean scores) to measure consensus. Thematically coded the qualitative feedback. A Framework Validation Index (FVI) was computed as the average rating across framework aspects.

Results and Discussion

Expert Profile

Among 45 respondents, 42 provided valid responses (93% response rate). Participants included 15 agricultural scientists, 10 ACIC/AIC managers, 7 incubator mentors, 6 NGO practitioners, and 4 extension professionals.

Quantitative Analysis

Table 2 presents the mean score (on a 5-point scale).

Table 2: Expert Validation Scores

Framework Component	Mean Score	Interpretation
Stage I: Identification	4.72	Highly relevant and practical
Stage II: Documentation	4.60	Well-structured and comprehensive
Stage III: Validation	4.58	Scientifically valid
Stage IV: Value Addition & Incubation	4.47	Strong linkage to entrepreneurship
Stage V: Dissemination	4.55	Effective for visibility and impact

The **overall FVI = 4.58**, indicating strong expert consensus on the framework's relevance.

Qualitative Insights

Experts emphasized:

★ The importance of geotagging for digital documentation systems.
★ Need to ensure data accuracy for community training programs.
★ Integration of AIM and ICAR databases for validation and funding.
★ A gender-inclusive innovation ridiculing mechanism.

Regional Relevance

In Gudur, innovations such as low-cost aeration systems for aquaculture ponds, natural feed formulations, organic pest repellents and various value-added products were identified. The framework enabled proper recording and assessment of these innovations, paving the way for prototype refinement under ACIC's incubation system.

Policy Implications

1. **Replication Potential:** The framework can serve as a model for other ACICs and state-level innovation institutions.
2. **Institutional Integration:** Collaboration among KVKs, Research stations, AIM and agricultural and allied universities can strengthen validation.
3. **Digital Repository Creation:** A national "Digital Community Innovation Bank" can consolidate such documentation.
4. **Sustainability:** Linking innovators to incubation and microfinance institutions can ensure long-term viability.
5. **Inclusivity:** Policies should ensure participation of women, youth and marginal farmer communities in the innovation value chain.

Conclusion

The ACIC-ASIIC model demonstrates that a structured, participatory documentation process can effectively bridge informal rural ingenuity and formal innovation ecosystems. Expert validation confirms its feasibility and adaptability. The Gudur experience suggests that institutionalizing such frameworks across the country through the ACIC network can lead to systematic recognition and commercialization of community innovations, contributing significantly to sustainable rural development and also Atmanirbhar Bharat which serves as the path to achieve the broader goal of Viksit Bharat by 2047.

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