



MANAGE Agricultural Extension “Evening4Learning (E4L)” Webinar Series



**Topic: : “New Developments and Professional Opportunities in
Research, Incubation and Organisation Development”**



Schedule:

20-11-2022, 19:00-19:30 PM



About the Program

The MANAGE Agricultural Extension “Evening4Learning” Webinar Series is aimed at enhancing knowledge and professional engagement in the field of agricultural extension. The twelve-day series is structured with each day focusing on a distinct topic under a common theme, allowing participants to gain comprehensive insights into key areas of extension. The program is intended for a diverse audience, including postgraduate and doctoral students, agricultural faculty, and industry professionals. It covers broad themes ranging from entrepreneurship and sustainability to emerging technologies in agriculture.





MANAGE
Agricultural Extension
Webinar Series
(Online)

19-30 November 2022
19.00-20.30 pm (IST)

Agricultural Extension
To meet the new challenges in the agri-food systems



Speaker

Dr. P. Sethuraman Sivakumar

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 P. Sethuraman Sivakumar

About the Speaker

Dr. P. Sethuraman Sivakumar is a Principal Scientist at ICAR-CTCRI, working in the Division of Innovations, Technology Management and Utilization. His areas of expertise include technology commercialisation, business incubation, agripreneurship development, nutrition-sensitive extension, and market linkage. He has led several research and development initiatives related to tuber crops, seed systems, value addition, consumer behaviour, and scaling up of biofortified crops.

Career Orientation among Agricultural Students

Career planning is a critical component of professional development for agricultural students. Many students begin exploring future career pathways during the early years of their undergraduate education, with aspirations ranging from higher studies and research to competitive examinations, public service, banking, agribusiness, and development-sector careers. Agricultural education today offers a wide spectrum of opportunities that extend beyond traditional employment avenues and require students to develop multidisciplinary competencies and a long-term career vision.

Within this context, Agricultural Extension and Communication has evolved from a conventional technology-transfer discipline to a dynamic field encompassing research, innovation, entrepreneurship, digital agriculture, policy support, community development, monitoring and evaluation, and knowledge management. Students are attracted to the discipline for various reasons, including an interest in social sciences and human behaviour, commitment to working with farming communities, aspirations for rural and agricultural development, preparation for competitive examinations, and opportunities for higher education and research.

Agricultural Extension professionals are increasingly sought by ICAR institutes, Agricultural Universities, Krishi Vigyan Kendras (KVKs), ATMA, government departments, NGOs, international development Organisations, Farmer Producer Organisations (FPOs), agribusiness firms, research and consulting agencies, technology incubators, and startup ecosystems. Consequently, students should view Agricultural Extension not merely as a field-level advisory service but as a multidisciplinary profession offering diverse career pathways in research, development, innovation management, digital communication, technology commercialisation, entrepreneurship promotion, and policy implementation.

In this context, there is a need for developing competencies in research methodology, communication, data analytics, digital tools, stakeholder engagement, and innovation management to effectively respond to the emerging demands of the agricultural innovation system and to build successful careers in the evolving extension landscape.

Anatomy of an Extension Scientist

The work profile of an extension scientist in a public-sector research Organisation includes:

Major activity	Indicative share of time
Field work and application of change	25–40%
Research and understanding of	Around 30%
Documentation and dissemination	Around 10%
Stakeholder management and facilitation	Around 10%

The proportions may vary depending upon the Organisation, job profile and nature of work.

Importance of Field Engagement

Extension researchers should maintain a strong connection with farmers and field realities. Research should not be limited to desk-based analysis or publication-oriented activities.

Field engagement enables researchers to:

- Understand farmers' actual problems.
- Identify gaps between technology development and adoption.
- Design relevant interventions.
- Assess the effectiveness of extension programmes.
- Understand behavioural and institutional changes.
- Generate evidence that can support policy and programme decisions.

Research Competencies

An extension research professional is expected to develop competence in:

- Research design.
- Research proposal development.
- Questionnaire and research-instrument development.
- Data collection.
- Quantitative research.
- Qualitative research.
- Mixed-method research.
- Statistical analysis.
- Data interpretation.
- Impact assessment.
- Adoption studies.
- Monitoring and evaluation.
- Documentation and scientific publication.

The ability to publish quality research is an important component of professional development in research-oriented careers.

Potential Employers for Extension Research Professionals

Public and Academic Institutions

- Agricultural universities.
- Research institutions.
- ICAR institutions.
- Universities and higher educational institutions.
- Government research and development Organisations.

International and Development Organisations

Professionals may find opportunities with international agricultural research and development Organisations, international agencies and development institutions.

NGOs and Civil Society Organisations

NGOs require professionals for:

- Baseline studies.
- Impact assessment.
- Monitoring and evaluation.
- Livelihood assessment.
- Community development.
- Nutrition interventions.
- Climate-resilient agriculture.
- Capacity building.
- Programme evaluation.

Private Sector

Private Organisations may recruit extension and social science professionals for:

- Market research.
- Consumer research.
- Programme evaluation.
- CSR initiatives.
- Data analysis.
- Stakeholder engagement.
- Value-chain interventions.
- Consulting services.

Farmer Producer Organisations

FPOs and other farmer Organisations increasingly require professionals who can support Organisational development, value-chain development, market linkages, capacity building and enterprise development.

Freelance Consulting

Freelance research and consulting was identified as another emerging career pathway, particularly for professionals who develop specialized expertise in research design, data analysis, monitoring and evaluation.

Competencies Required by NGOs and International Organisations

The NGOs and international Organisations generally recruit according to the specific requirements of a project or position, rather than simply recruiting agricultural graduates.

Important competencies include:

Communication Skills

Professionals should be able to communicate effectively in:

- English.
- Local/regional languages.
- Written communication.
- Oral communication.
- Professional and stakeholder communication.

Research Acumen

Candidates should be capable of:

- Planning research.
- Developing research instruments.
- Conducting field studies.
- Managing data.
- Analysing results.
- Preparing reports.
- Delivering outputs within deadlines.

Time and Project Management

Development-sector projects generally operate according to clearly defined timelines. Professionals therefore require:

- Time management.
- Multitasking ability.
- Rapid problem solving.
- Commitment to deadlines.
- Ability to work under project timelines.

Statistical and Digital Competencies

The modern extension researchers must develop strong competencies in statistical analysis, digital technologies, and advanced research methods to remain competitive in emerging career domains. Participants were encouraged to gain proficiency in statistical software such as R, Stata, and other quantitative analysis platforms, along with programming skills in Python for applications related to digital data collection, Internet of Things (IoT), machine learning, digital agriculture, and large-scale data analytics. The session also highlighted the importance of expertise in qualitative research methods and software, including NVivo, as well as advanced analytical tools such as AMOS, SmartPLS, and Structural Equation Modelling (SEM) for behavioural and social science research. Additionally, exposure to psychometric and measurement approaches, including Classical Test Theory, Item Response Theory, Generalizability Theory, and R-based psychometric packages, was recommended for researchers involved in scale development and behavioural assessment studies.

Professional Networking and Online Learning

Professional networking and online learning helps individuals build professional connections, identify employment opportunities, and acquire new skills and competencies that enhance their career prospects. One should be actively using:

- **LinkedIn** for understanding job descriptions, professional requirements and career opportunities.
- **ResearchGate** for research networking and academic discussions.
- **YouTube and other online learning platforms** for acquiring technical and software-related skills.

The emphasis was that merely creating an account is insufficient; students should actively participate, learn and build a professional portfolio.

Technology Management and Commercialisation Process

Extension-based Technology Transfer

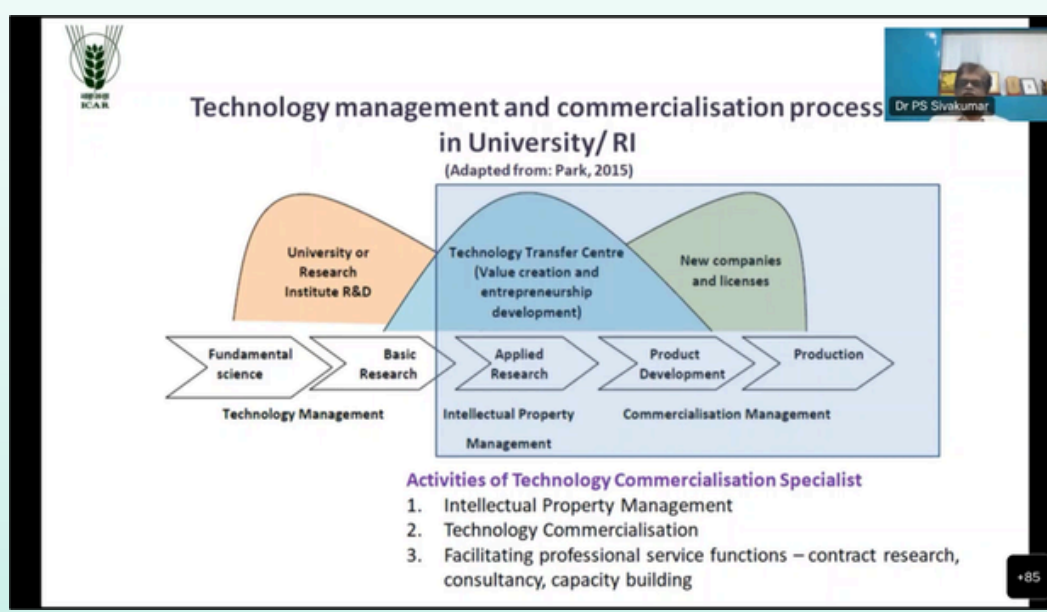
This traditionally involves dissemination of agricultural technologies, practices and knowledge to farmers, often through extension systems and public-sector programmes.

Technology Commercialisation

Technology Commercialisation involves transferring technologies developed through research to suitable Organisations or enterprises through mechanisms such as:

- Licensing.
- Technology transfer.
- Intellectual property management.
- Industry collaboration.
- Commercial production.
- Public-private partnerships.

The growing investment in agricultural research and innovation has increased the importance of professionals who can facilitate the movement of technologies from research institutions to markets and end users.



Skills Required in Technology Commercialisation

Professionals aspiring to work in Technology Management Units (TMUs) and incubation centres should possess knowledge of:

- Intellectual Property Rights (IPR)
- Patent searching and filing
- Patent valuation
- Agreement drafting
- Startup management
- Business planning
- Market research
- Negotiation skills
- Event management

Qualifying as a Patent Agent offers specialized employment and consultancy opportunities in technology management and innovation ecosystems.

Technology Management

Technology Management Units in research institutions perform important functions related to:

- Intellectual property protection.
- Patent management.
- Patent searching.
- Technology licensing.
- Technology valuation.
- Agreement preparation.
- Industry interaction.
- Technology transfer.
- Contract research.
- Consultancy.
- Public-private partnerships.
- Capacity building.

The specialized knowledge in intellectual property rights can provide an important advantage for professionals seeking employment in this field.

Business Incubation

Business incubation is an emerging career field for agricultural extension and social science professionals. An incubator supports entrepreneurs and innovators in transforming ideas into viable products, services or enterprises.

The incubation process may include:

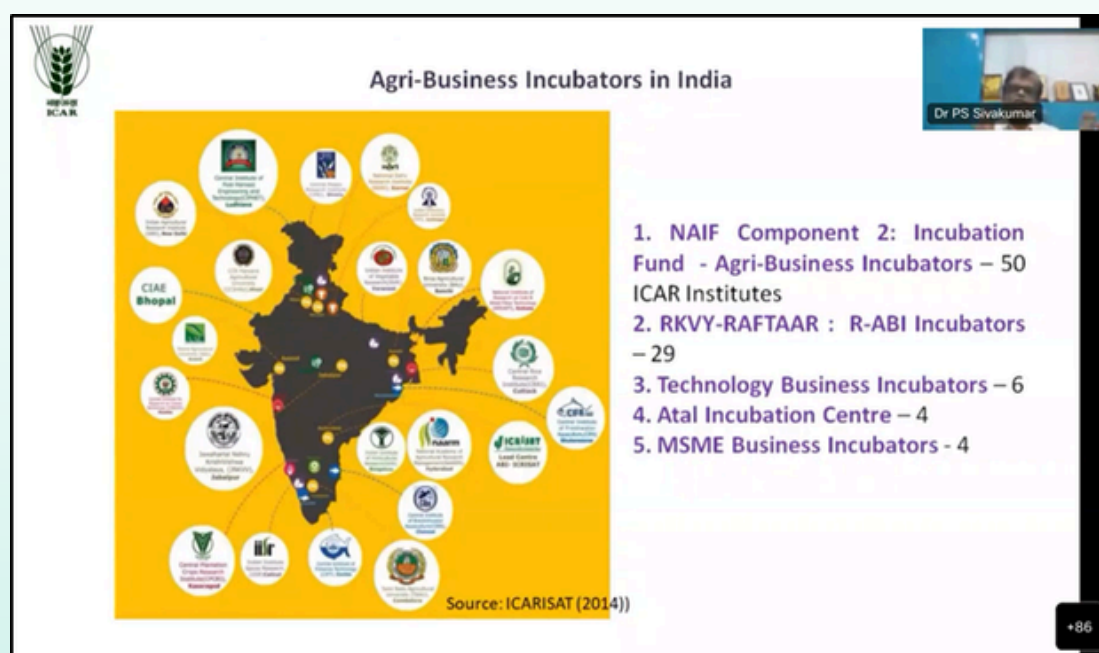
- Identification of an innovative idea.
- Technical validation.
- Product/service development.
- Development of a minimum viable product (MVP).

- Business planning.
- Market assessment.
- Mentoring.
- Networking.
- Access to funding or seed capital.
- Market linkage and commercialisation.

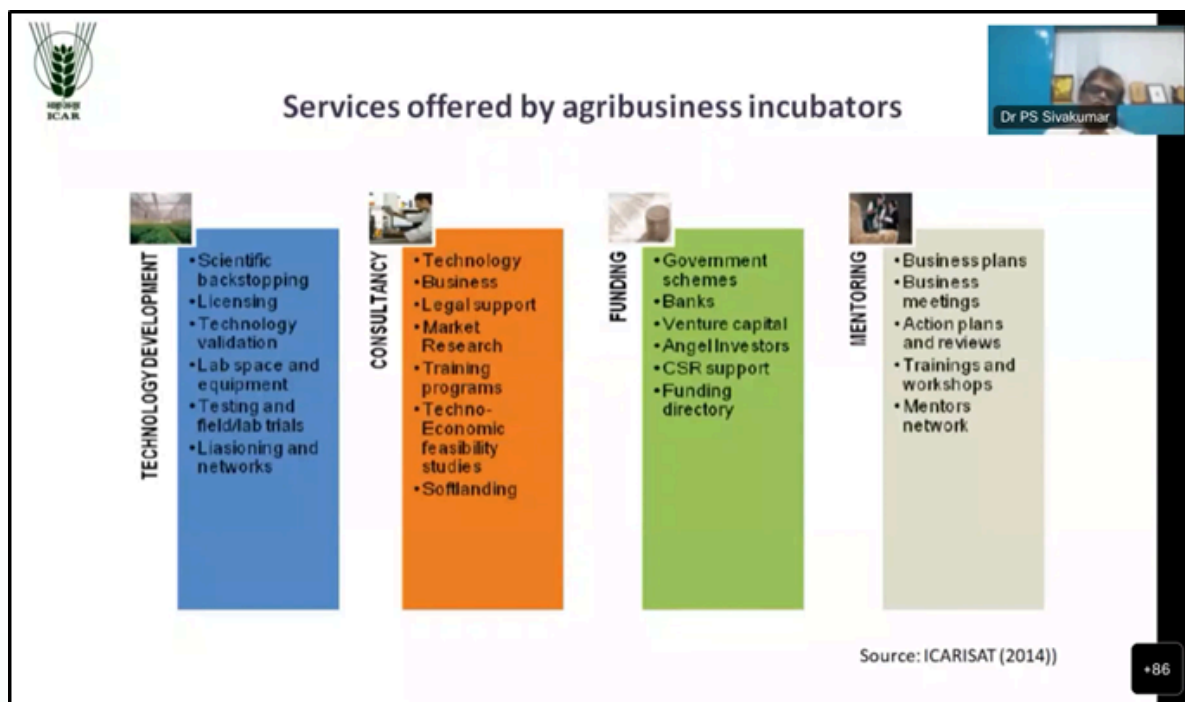
Evolution of Incubation Policies of Govt. of India

Year	Scheme	Purpose
1955	MSME-NSIC	To support skill based small businesses
1982	DST-NSTED	Commercialisation of Technology
2008	NAIP - ICAR	Agri-Business Incubation through Business Planning and Development (BPD) units
2008	MSME Incubation	To support livelihoods and technology-based entrepreneurship through incubators
2008	MEiY - TIDE	Bridge gap in R&D commercialisation of electronics and IT
2016	DST-NIDHI	Umbrella scheme to housing multiple programmes to promote innovation and entrepreneurship
2016	NITI-Aayog AIM	Innovation organisation to lay impetus for startups and innovation holistically
2019	MeitY – TIDE 2.0	To support startups in emerging technologies

Agri-Business Incubators in India



Services offered by Agribusiness Incubators



Career Opportunities in Incubation

Potential positions in the incubation ecosystem may include:

- Young Professional.
- Business Executive.
- Business Manager.
- Innovation Manager.
- Incubation Manager.
- Technology Commercialisation Specialist.
- IP/Technology Management Professional.
- CEO/Incubator Head.
- Consultant.
- Entrepreneurship Development Professional.

Remuneration varies considerably depending on the Organisation, position, qualifications, experience and funding structure. The specialized positions in innovation and incubation can offer comparatively attractive remuneration.

Key Highlights

- **Agricultural Extension offers diverse career opportunities** beyond traditional extension services, including research, digital agriculture, innovation management, entrepreneurship, technology commercialisation, policy support, monitoring and evaluation, and consulting.
- **Extension research professionals are increasingly in demand** across ICAR institutes, Agricultural Universities, KVKs, NGOs, international Organisations, FPOs, agribusiness firms, research agencies, technology incubators, and startup ecosystems.
- **Strong research competencies are essential** for career advancement, including research design, data collection, quantitative and qualitative analysis, impact assessment, monitoring and evaluation, and scientific publication.
- **Digital and analytical skills are becoming critical** for extension professionals. Proficiency in R, Stata, Python, machine learning, IoT applications, NVivo, AMOS, SmartPLS, and psychometric analysis can significantly enhance employability.
- **Technology commercialisation and intellectual property management** have emerged as important career domains, requiring knowledge of IPR, patent filing, technology licensing, startup management, market research, and negotiation skills.
- **Business incubation is a rapidly growing employment sector**, offering opportunities as Business Managers, Innovation Managers, Incubation Managers, Technology Commercialisation Specialists, and Entrepreneurship Development Professionals, with potential for attractive remuneration and career growth.

YouTube Link:

<https://youtu.be/zomYNqdFMB8?list=PLcfEugbo2RL0&t=2>

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