ARISE

CULTIVATING RESILIENCE

Urban & Peri-urban Agriculture in Policy & Practice

Workshop Report

28 October, 2025

Madras Boat Club

Email: arise.agroecology@gmail.com

ARiSE (Agroecology for Resilience, Sustainability, and Entrepreneurship) is a collaborative initiative anchored at IIT Madras. ARiSE brings together key stakeholders and policy actors to foster continuous dialogue on food systems transformation. It also serves as a knowledge platform for innovative, practice-based work in agroecology, resilience, and sustainable food systems.

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Impressum

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I. Introduction

The second edition of the **ARiSE workshops aimed to establish Urban & Peri-Urban Agriculture not merely as a marginal activity but as a key component of sustainable food systems** and urban transformation, capable of delivering multi-sectoral co-benefits across climate mitigation, livelihood creation, health, and environmental regulation. The core inquiry centered on how Chennai can become both sustainable and climate-resilient through the adoption of urban and peri-urban agriculture systems as well.

The workshop started with a welcome note by Mr. Krishnamohan Ramachandran, the Chennai Resilience Officer from Chennai Resilience Centre followed by opening remarks from Professor Sudhir Chella Rajan from the Indian Institute of Technology, Madras.

Despite Chennai having rich land capable of growing significant food, most consumed food travels from far away due to the food supply chain, according to Professor Sudhir Chella Rajan.

The primary goal is to achieve food sovereignty. This means the city should be able to largely produce food for itself while simultaneously supporting many small farmers in the surrounding region. Professor Chella expressed enthusiasm for the potential formation of a Food Policy Council (FPC) arising from the workshop interactions.

Keynote Address

II. Cultivating Resilience: Integrating Urban & Peri-Urban Agriculture into Sustainable Development

Dr. M. Umanath, Madras Institute of Development Studies

Dr. Umanath established the necessity of integrating Urban and Peri-Urban Agriculture (UPA) into the planning processes of rapidly growing cities like Chennai. He noted that India is projected to have 600 million urban residents by 2030, which puts immense pressure on natural resources and leads to unsustainable growth. Rapid and often unplanned growth (sprawl) exerts immense pressure on natural resources, leading to the loss and fragmentation of agricultural land, forests, and water bodies. This renders urban growth patterns unsustainable.

He emphasized that achieving sustainability requires integrated, ecosystem-based planning structured around three critical pillars:

Ecological Conservation: Protecting soil, water, and biodiversity, and adopting circular economy practices like composting to close nutrient loops.

Economic Viability: Ensuring profitability and market access, especially for small farmers, through finance and technology (like solar pumps).

Social Equity: Ensuring inclusion, fairness, and guaranteed food and nutrition security for the urban population, particularly low-income groups and women.

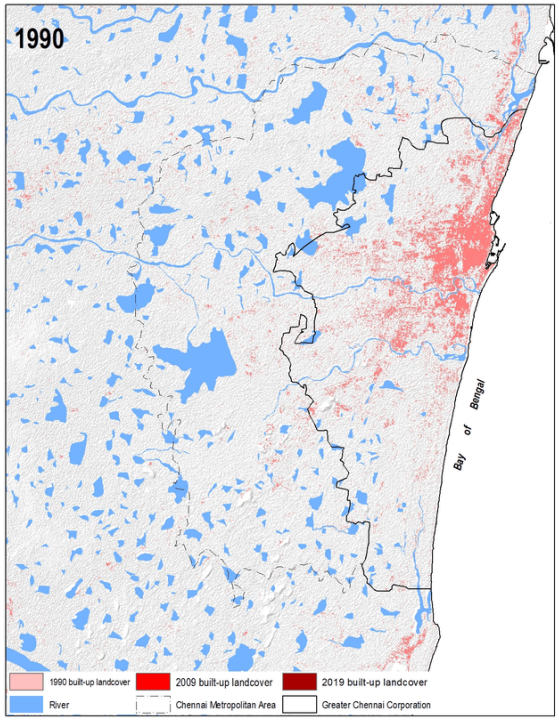
Dr. Umanath concluded that UPA is a powerful tool for building sustainable, inclusive, and resilient cities, transforming them from centers of consumption into hubs of production, equity, and ecological balance.

Presentations: Evidence and Opportunities

III. Fields in Transition: Integrating Agriculture into Chennai's Urban Resilience Agenda

Ramachandran Arumugam, Okapi Research & Advisory

Ramachandran analyzed the trajectory of agricultural land loss in the Chennai Metropolitan Area (CMA) and found a drastic decline from nearly 60% before 1975 to about 10% by the time the Second Master Plan (2006) came into effect. The plan projected that only 7% of land would remain under agriculture by 2026, with the remaining 3% expected to be converted for other uses. Based on GIS and remote sensing analysis, it was found that about 13% of agricultural land is still available, although this decline has occurred along- side an eightfold increase in the built-up area between 1988 and 2024.According to Ramachandran, this transformation has been driven by structural and institutional factors such as treating agriculture as a residual category in urban planning, intense pressure from the real estate sector, frequent land reclassification—occurring 725 times between 1977 and 2005—and the perception that farming is no longer viable due to water scarcity.



Highlights: The upcoming Third Master Plan (2026–2046) offers opportunities by focusing on integrating Blue-Green Infrastructure, flood control, and climate resilience. New regulatory frameworks like the Draft Sustainable Land Use Policy (2024) aim to protect prime cultivable land. However, implementation risks remain high due to weak enforcement. For example, the Pallikaranai Marshland continues to face encroachments and inadequate buffer protection, even though it serves as a critical ecological and flood mitigation zone.

IV. Chennai's Peri-Urban Farmer's Point of View

Karthik Gunasekar, Aram Thinai

PC: Karthik Gunasekar. *Satyapani at his farm.*

Presenting the ground reality, the presentation highlighted common challenges faced by peri-urban farmers, including rapid urbanization, labor scarcity, increasing costs of living, and vulnerability to climate change impacts. Case studies showed that most farmers often need supplementary income (e.g., Satyapani from Kanchipuram, who cultivates a diverse array of crops on a small organic plot and works as a heavy excavator driver for supplementary income) to survive.

Key Demands: Consultations with the Tamil Nadu Iyarkai Velan Koottamaipu (TNIVK) consolidated key demands, including mandating government agencies (for PDS/school schemes) to procure at least 30% of their food from local organic farmers. They also demanded initiating Payment for Ecosystem Services (PES) for organic farmers in recognition of the flood resilience and climate mitigation benefits they provide, and support to set up local community-based traditional seed banks and organic input production.

V. Edible Rooftop Gardens as a Climate Adaptation Solution?

Akshaya Ayyangar, Okapi Research & Advisory

Focusing on the Chennai Urban Farming Initiative (CUFI), Akshaya provided empirical evidence of the climate adaptation potential of edible rooftop gardens. CUFI employs Mobile Vegetable Garden Kits (MVGK) and trains women (through the Madras Mali program) to set up and maintain gardens in public institutions like schools and Anganwadis.

Highlights: Preliminary findings revealed significant cooling effects: the ambient air temperature in the room below the edible rooftop garden was 0.3 to 1.2°C cooler on average than air temperature in a room below an exposed roof, and the gardens result in a 5–10 °C lower surface temperature and ~2 °C lower ceiling temperature at peak temperatures during the day.

Despite this evidence, a key policy gap exists, as most Heat Action Plans (HAPs) of cities, districts, states across the country, do not formally mandate green roofs as a cooling strategy (with Vijayawada being a rare exception).

Challenges include intensive maintenance, structural concerns, and limited policy incentives or enforceable standards in green building codes.

VI. Can Chennai Benefit from a Food Policy Council?

Joel Kumar, IGCS, IIT Madras

Joel argued that Chennai needs a comprehensive institutional mechanism—a Food Policy Council (FPC)—to govern its food system and build resilience. The argument was based on the crisis Chennai currently faces: a vulnerable supply chain where food travels an average of 1,137 km per metric tonne, massive peri-urban farmland loss (2,50,576 hectares lost between 2008–2017), and zero reference to food systems in the current master plan.

An FPC is a collaborative platform bringing together diverse stakeholders (farmers, policymakers, academics, citizens) to shape a shared food future. Joel presented that it is generally structured around three core pillars: providing access to nutrition, protecting the environment, and securing the livelihoods of farmers.

Highlight: Studies show FPC cities are twice as likely to adopt healthy food policies and proved critical in coordinating emergency food supply during crises (like COVID-19).

Group Discussions and Takeaways

VII. Group 1: How do we make Chennai's food systems sustainable and equitable?

The group identified systemic challenges in labour, pricing, and distribution.

Area	Challenge	Takeaways/Solutions
Labour	Exploitative conditions, sub- par wages, and instability due to seasonal monocrop cultivation.	Focus on ensuring continuous, creative, and dignified work. Closed-loop agricultural systems can provide year-round engagement.

Distribution	Increased food miles and corporate domination of the farmer-consumer link.	Develop a city-wide network of *sandhai*'s (local markets) to localise food systems. Diversify PDS products beyond grains for better nutrition.
Economic Viability	Need to balance fair and stable prices for farmers with ensuring food remains affordable and ideally subsidised for consumers.	Strong consumer education and awareness campaigns are needed to counter the perception that organic food is inherently more expensive.
Agricultural Practices	Monoculture dominance.	Provide institutional support for tenancy farming, potentially via 10-year government- backed contracts that allow tenants to improve soil quality.

VIII. Group 2: Mainstream Policies for UPA and the Role of a Food Policy Council

The fundamental challenge identified was the gap between policy and the reality of agriculture, highlighting that policy mandates often fail to be reflected in design and execution.

Spatial Planning and Land Protection:

Geo-satellite mapping should be used to comprehensively identify and categorize land (active agriculture, fallow, waste). Policies must then fix and restrict land use based on this zonation.

Policymakers must suggest increasing Open Space Reserve (OSR) lands and establishing them as an "absolute no-go" zone. These public lands could be leveraged for implementing agriculture.

Policies must be pushed through the legislature to become law. Policies that are not law are difficult to enforce and often remain "on paper" itself.

Mapping Foodscapes: Policy should begin by defining and mapping what comprises a foodscape—the multiple systems (production, distribution, consumption) operating at city, neighborhood, and regional levels. This includes classifying spaces that manifest these systems, such as converting farmlands into food forests or identifying open spaces as potential patches for production.

Empowering Farmers:

Policy must mandate systems to provide farmers with real-time market intelligence (prices, storage, arrivals).

A Digital Requirement Aggregation system should be built to collect regional consumption needs, allowing farmers to adjust crop rotation based on forecast demand.

Financial stability requires providing loans to farmers at affordable rates (instead of the current 9–15% rates) and addressing the severe lack of storage capacity.

Bridging Policy and Planning: The objective should be to mainstream urban and peri- urban agriculture practices into master plans and policies.

Establishing a Food Policy Council: A Food Policy Council can serve as a key tool. This council could represent stakeholders, facilitate democratic input regarding issues like FSI adjustments, and ensure that the discussion focuses on food itself, which often gets missed when only analyzing land or consumption patterns.

IX. Group 3: Edible Rooftop Gardens as a Climate Adaptation Tool

The discussion focused on how to mainstream edible rooftop gardening (ERG) as an effective climate adaptation tool.

Strategies for Mainstreaming:

Leverage the Tamil Nadu Green Schools Program and work with District Collectors (Mission Directors) to integrate ERG, alongside other components like RWH systems and solar panels.

Promote the ICDS (Integrated Child Development Services) department as the Edible Rooftop Gardening Champion for other government departments, leveraging their success in poshan vatikas (nutrition gardens).

Include ERG in the school curriculum to engage students and address maintenance needs.

Make a provision for rooftop gardening in public building renovation procedures, ensuring the Greater Chennai Corporation renovates old buildings with load-bearing capacity in mind.

Addressing Challenges:

Awareness: Conduct thermal comfort surveys among residents with rooftop gardens to generate data that highlight the heat adaptation potential, supporting broader awareness sessions (in collaboration with the Tamil Nadu Horticulture Department).

Water Access: Encourage reusing and recycling grey water, especially from kitchens.

Human Resources/Capacity: Use technology, such as a mobile app, to provide support and clear doubts regarding maintenance.

Key Takeaway (Adoption Levers): While ERGs are important tools for addressing heat, the

co-benefits of access to food, improved nutrition, and mental/physical health may be more effective levers for encouraging greater adoption than climate adaptation alone.

X. Way Forward

Building on the rich discussions and insights from the workshop, ARiSE proposes the following next steps to continue advancing urban and peri-urban agroecology in the Chennai region:

a. **White Paper**: Develop a concise policy brief based on workshop insights for submission to relevant government departments.

b. **Consultation**: Organize a meeting with government representatives and potential funders to plan follow-up research and pilot initiatives.

c. **Engagement:** Stay connected with the ARiSE platform for ongoing activities and collaborations.

The roadmap for Chennai's food system transformation includes empowering peri-urban farmers, protecting and preserving agriculture zones, leveraging edible rooftop gardening, and establishing a Food Policy Council platform to address challenges and opportunities.

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About Our Partners

SOLVERMINDS Solutions & Technologies

www.solverminds.com

A Chennai-based global technology company specialising in AI-driven enterprise solutions for the maritime and logistics sectors, Solverminds supports efficiency, automation and data-analytics-based decision-making.

Indian Institute of Technology, Madras

www.hss.iitm.ac.in

One of India's premier institutes of higher education and research, IIT Madras anchors the ARiSE initiative through the Humanities Department and provides an interdisciplinary platform for work in agroecology, sustainability and entrepreneurship.

Okapi Research & Advisory

www.okapia.co

Okapi is an IIT Madras incubated research group. Drawing extensively on interdisciplinary research and multistakeholder engagement, Okapi aims to foster Sustainable Urban Transformations through multiple channels such as socio-environmentally sensitive water / waste management, food systems, and resilient disaster management.

Chennai Resilience Centre

www.resilientchennai.com

A Chennai-based organisation that researches, develops and implements resilience-building projects for the city, working on integrated approaches to urban sustainability and adaptation.

Aram Thinai

www.aramthinai.in

A platform engaging youth in climate action, local-livelihoods and eco-social justice; Aram Thinai works at the intersection of landscape, community knowledge and climate resilience.

ARISE

www.arise.website

For further information on the ARiSE initiative or to explore partnership opportunities, please feel free to reach out to us at arise.agroecology@gmail.com