



**Urban and Peri-urban Agricultural Planning for Sustainable Agricultural
Development: A Case Study of NCT of Delhi**

Major Findings

of the Ph.D. Thesis

Submitted to

Jamia Millia Islamia

For the award of the Degree of Doctor of Philosophy

Submitted by

SHALU NASHIER

Under the Supervision of

Prof. SHAHNAZ PARVEEN

Department of Geography

Faculty of Natural Sciences

Jamia Millia Islamia

New Delhi- 25

September, 2021

Major Findings

The major findings of the study area are based on the primary data for urban and peri-urban-agriculture (UPA) collected through a self-structured questionnaire through a sampled survey for peri-urban agriculture (PUA) of five rural villages Dichaon Kalan, Neel Wal, Jhatikra, Jonti, and Chatesar, and under urban agriculture (UA) seven urban localities, namely Ranhola Shaffipur and Chander Vihar (West Zone), Shakarpur and Lalita Park (Yamuna Belt Zone 'O'), Shiv Puri, Raghu Nagar, and Vijay Enclave from Najafgarh Zone of NCT of Delhi.

After the cross-tabulation of data on a location/locality basis and income-wise categories at the household level, the results of the graph prepared are discussed sequentially covered under the previous chapter on Status of Urban Agriculture in NCT of Delhi and Status of Peri-Urban Agriculture in NCT of Delhi. The study has further highlighted the multi-dimensional aspect of the data through principal component analysis (PCA), which helps finally to draw major development trend under urban and peri-urban agriculture as follows:

Conclusion and Suggestions

Major Findings: The major findings of the study area are as follows:

Urban Agriculture (UA)

Urban Agriculture (UA) along River Yamuna Belt

- Landholding size is marginal and small (3-5 acres), inhabited by migrants (94%), around 70% practicing UA for >30 years and 85% as their family tradition.
- UA is a full-time activity for 91%, preferred by middle age either illiterate (66%), or primary passed (21%).
- the purpose is commercial (100%), for irrigation 93.5% are dependent on tube well, and only 6.5% are using river water.

Urban Agriculture (UA) in West Zone

- Poor migrants (43%) within 30-40 years age group with family support (62%) for 10-20 years are practicing on a full-time basis (100%)

- In Chander Vihar landholding is small as 76% practice on < 2 acres, with 100 % preference on horticulture practices in nurseries. mainly using drain water and organic manures.
- In Shaffipur Ranhola, 56% of the landholdings are 2-5 acres, expenditure is high for 70% of farmers, the output is satisfying the economic needs of 80% of farmers.
- **The benefits** from UA for Yamuna Belt and West Zone are economical gain (100%), improved diet (64%), improved social ties (23%), clean and healthy organically produced food(12%), working in free time releases stress (15%), by planting decorative flowers and plants 7% feel good about improved environment.
- The commonly faced *problems* are deteriorating water quality (56%), scarcity of water (54%) The threat of acquiring land by DDA created insecurity (45%).

Urban Agriculture (UA) in Najafgarh Zone

- Within home practices as **rooftops, balcony agriculture (86%)** is common, 89% are practicing for <10 years.
- 66.31% practicing on <5 sq. feet and around 9% are practicing on >30 sq. feet area.
- majority of practitioners are housewives (68%), 4% of old aged and retired people and educated up to senior secondary level (76%). With 90% having knowledge of agricultural practices.
- Mechanization is almost negligible (97%) and tap water (100%) or underground water through boring is used. Around 90% are growing food organically by using kitchen waste. practiced as a hobby on part-time basis (94%), therefore, not supporting them financially.
- The main *purpose and motivation* include supplementing food requirement (80%) improving indoor environment (6.53%), improving social ties (9.03%). Main purpose is self-consumption.
- The main benefits are: Nutritional requirement of 33% is fulfilled, getting organically produced healthy food (65%), economic needs (40%) are met, 43% feel good about improved environment and retired /old aged get psychological pleasure (28.87%)
- The commonly faced problems are lack of recent knowledge (30%) and scarcity of water (24%),

PUA in Selected Villages

- Majority of farmers (61.14%) are small, and semi-medium (2-5 acres). Around 92% are owners of land having > 30,000 to 50,000 income group while 8% are landless migrants belonging mainly to < 30,000 income group.
- PUA is male dominant (95%) with 2.78% female participation, 46% practitioners are in the 50-60 years age group with 98.6% literate educated up to senior secondary level (80.66%). most of them are involved in temporary waged jobs (36%). Almost 90% have small (<5 persons) and medium (5-8 persons) size of the family. PUA as family

tradition is practiced by 95% with 89% practicing for > 30 years on part time basis (90%).

- On small land size (< 2 acre) Vegetable cultivation and on large landholding (>5 acre) preference is for grains production.
- Mechanisation level is high, around 70% practitioner's own tractors. Dependence on Tube well (100%) and even on drain/ nalla water is noticed.
- chemical farming is done by 72% for commercial reason and organic farming by 22% for self-consumption mainly in higher-income groups (44%) in > 50,000 income group.
- The purpose for which PUA is done is mainly sale (100%) and self-consumption, in high-income group (> 50,000), it is for availing healthy organic food (70%).
- The main benefit are food and nutritional requirement (71%) are met, Healthy and clean organic food (65%) are produced by organic farming, working on own land gives psychological relief (63%), financial needs of 88% are met and green surrounding improves environment (51%).
- The problem associated with the practice of peri-urban agriculture in the surveyed villages is mostly related to quality (58%) and scarcity (33%) of water and high water (41%) and electricity bills (40%).
- **Conclusion is drawn from Principal Component Analysis (PCA) is as follows:**
- ***Conclusion for urban agriculture*** Urban agriculture (UA) in Yamuna Belt and West zone is done purely for *commercial purpose*, mainly by poor, illiterate migrants with <15,000 income.
- They are involved on a full-time basis, mainly by middle-aged male practitioners with the support of their family members as it supplements income and diet.
- Here UA is practiced by marginal, small, and semi-medium farmers of small plot size with heavy mechanization with the use of drain/river water are producing cereals, leafy vegetables, root and stem vegetables, floriculture, fruit, followed by livestock keeping like cows.
- In addition, *rooftop/balcony agriculture* where UA is done mainly by educated females to supplement diet or by temporary waged jobs, self-employed and permanent waged job with >40,0000 income, mainly as a hobby for psychological well-being. Focus is on growing organic healthy food for self-consumption mainly, are concerned about quality not the quantity of production
- **Suggestions:** Lack of skills, knowledge, and resources amongst farmers can be controlled by organizing training camps and Kisan goshtthis, as covered under the **Monitoring and Analyzing Food and Agricultural Policies (MAFAP) program (2019-2020, in India), a common program of NITI Aayog and FAO (Food and Agriculture Organization) of the United Nations.**

- There is a need to promote organic farming and use of treated sewage water as promoted under *Paramparagat Krishi Vikas Yojana (PKVY, 2015)*.
- The greening city effect could be achieved largely through indigenous science and technology innovations such as *Nisarga Runa* through encouraging a Gold Class education system and public-private partnerships.
- ***Conclusion for peri-urban agriculture:*** Peri-urban agriculture has emerged as Market-Oriented and Commercial in nature in which on landholding size of 2-5 acres mainly practiced by middle-aged male on a part-time basis through heavy mechanization and by using tube well and drain water are producing a variety of vegetables like cauliflower, carrot, and spinach for commercial purpose as noticed in Dichaon Kalan and Neel Wal.
- Whereas grain farming and vegetable cultivation is a character of Jaunti and Chatesar villages.
- PUA is also for self-consumption as noticed in Dichaon Kalan and Neel Wal and Jhatikra with poor, illiterate migrants in the 30-40 years age group with maximum female involvement are producing cruciferous vegetables for self-consumption mainly, and some are keeping buffaloes to supplement the diet. While in Jonti on large landholding >8 acres with a sound knowledge of agricultural practices growing organic food for self-consumption mainly.
- **Suggestions for Peri-urban agriculture:** These areas are under constant threat of encroachment, it can be curbed through **the National Land Utilisation Policy (GOI, 2013)** and to meet the rising demand for fresh vegetables and perishable products **Vegetable Initiative for Urban Clusters (2011, GOI)** is started. Emphasis should be given on quality produce as covered in **Pradhan Mantri Kisan SAMPADA Yojana and Mission for Integrated Development of Horticulture (MIDH)**.
- To bring an economy of scale, farmers group like **FIGs (Financial Institution Group) /FPOs (Farmer Producer Organisation) and FPCs (Farmer Producing Company)** should be encouraged.
- Crop insurance in case of the perishable product can be ensured through **Warehouse building by Food Corporation of India (FCI) and Central Warehousing Corporation (CWC) on their land as village storage scheme to be run by Self Help Groups (SHG)** mainly by women this way participation of female can be assured.
- Incentive of profit can motivate youth in PUA practices, as pointed out by **NITI Aayog and FAO (2021)**.