

STRATEGY FOR DEVELOPING AGROPOLYTAN AREA IN CIPEUNDEUY DISTRICT, SUBANG REGENCY

Ahyad Taryadi ¹, Ruchyat Deni Djakapermana ², Indarti Komala Dewi ³

Master's Program in Regional and Urban Planning, Pakuan University, Indonesia

Email: ahyadtaryadi@gmail.com, ruchyatdenidj@unpak.ac.id, indarti@unpak.ac.id

Abstract

Keywords:

*Agropolitan,
Leading Commodities,
Location Quotient,
Scalogram Analysis,
Hierarchical Marketing.*

Cipeundeuy District, Subang Regency, possesses substantial agricultural potential with 5,780 hectares of non-paddy agricultural land, yet its development remains suboptimal due to unidentified leading commodities and unstructured marketing systems. This study aims to formulate an agropolitan area development strategy by analyzing leading commodities and the hierarchy of agricultural activity centers. The research employed Static Location Quotient (SLQ) and Dynamic Location Quotient (DLQ) to analyze 19 commodities based on 2019–2023 production data, alongside scalogram analysis of 14 facility types across seven villages, yielding a Coefficient of Reproducibility (COR) of 0.96. The integrated SLQ-DLQ analysis identified three leading commodities with strong comparative advantage and positive growth prospects: Beef Cattle (SLQ=11.43, DLQ=11.40), Sheep (SLQ=1.85, DLQ=1.28), and Broiler Chickens (SLQ=1.27, DLQ=1.72). Spatially, Beef Cattle are concentrated in Sawangan Village (60%), Sheep in Karangmukti Village (39%), and Broiler Chickens in Wantilan Village (40%). Reliable commodities include Coconut (SLQ=1.19), Goat (SLQ=1.51), and Native Chicken (SLQ=2.47). Scalogram analysis established the service center hierarchy: Cipeundeuy Village as Center I (score 12/14), Lengkong Village as Center II (score 6), Wantilan Village as Center III (score 5), and four hinterland villages as Center IV (scores 1-3). The formulated development strategy prioritizes capital assistance and technical training for leading commodities, revitalization of reliable commodities, and staged road infrastructure improvement from village and district roads to the Pantura Toll Road to strengthen the hierarchical marketing mechanism

INTRODUCTION

Regional development essentially aims to improve community welfare through optimal utilization of local resources. In rural areas dominated by agricultural activities,

sectoral and spatial approaches are crucial to foster inclusive and sustainable economic growth. Cipeundeuy District, located in Subang Regency, West Java Province, is an area with significant agricultural potential. With a non-rice field agricultural area of 5,780 hectares, the largest in the regency, and a majority of its population (65.1%) working in the agriculture, plantation, and livestock sectors, this district plays a strategic role in the regional agrarian economy (BPS Subang Regency, 2023; BPP Kec Cipeundeuy, 2023).

Despite its enormous potential, several fundamental problems hinder the optimal development of this region. First, there is no clear identification of superior commodities that can act as prime movers of the rural economy. Second, a spatial system for agricultural activity centers and an efficient marketing mechanism have not yet been established. Third, a comprehensive development strategy to transform agricultural resources into a competitive and sustainable economic force is lacking. Without a clear strategy, agricultural production remains fragmented, market access is limited, and the added value of the processing sector is not enjoyed by local communities.

The agropolitan concept presents a relevant and strategic solution to address these challenges. Based on Law Number 26 of 2007 concerning Spatial Planning, an agropolitan area is an area consisting of one or more activity centers in rural areas as a system of agricultural production and management of certain natural resources, which is indicated by the existence of functional links and spatial hierarchies of settlement and agribusiness system units. Friedmann and Douglass (1978) introduced this concept as an “accelerated rural development strategy,” which emphasizes the creation of a symbiotic relationship between production centers in rural areas (*hinterland*) and urban service centers. Djakapermana (2003) emphasized that an agropolitan area is a functional system of villages that form an agropolitan center and the surrounding villages.

This research has three objectives. First, to identify the production potential of agricultural resources and superior commodities in Cipeundeuy District. Second, to analyze the locations of agricultural activity centers, marketing centers, and commodity marketing distribution mechanisms. Third, to develop an agropolitan area development strategy that aligns with local characteristics. With this approach, the research is expected to provide input for local governments in designing regional development concepts that integrate the agricultural, processing, and residential sectors.

RESEARCH METHOD

The research was conducted in Cipeundeuy District, Subang Regency, which consists of seven villages: Cimayasari, Lengkong, Cipeundeuy, Wantilan, Sawangan, Karangmukti, and Kosar. This district has an area of 97.33 km² and is located at coordinates 6°40'35.0" South Latitude and 107°41'30.1" East Longitude. Data collection was carried out for six months, with the initial phase focused on primary and secondary data surveys in 2024-2025.

The data used consists of primary and secondary data. Primary data was obtained through in-depth interviews with five sources selected using purposive sampling, including officials from the Subang Regency Agriculture Service, the Head of the Regional Technical Implementation Unit, and agricultural extension workers from the Cipeundeuy District Agricultural Extension Center (BPP). Secondary data includes agricultural production statistics, commodity prices, population data, and road network maps, obtained from the Central Statistics Agency (BPS), the Agriculture Service, and the Subang Regency Development Planning Agency (Bappeda).

The analysis was conducted in three stages according to the research objectives. The first stage, identification of superior commodities using a combination of Static Location Quotient (SLQ) and Dynamic Location Quotient (DLQ). SLQ is used to measure the comparative advantage of a commodity in Cipeundeuy District against Subang Regency as a reference area, with production data from 2019 and 2023. A commodity is considered basic if the SLQ value is > 1 . Next, DLQ is used to analyze the dynamics of commodity growth during the 2019-2023 period, to see the prospects for its future development. Commodities with $DLQ > 1$ indicate a faster growth rate. The results of the combination of SLQ and DLQ produce four classifications: Superior ($SLQ > 1$, $DLQ > 1$), Mainstay ($SLQ > 1$, $DLQ < 1$), Prospective ($SLQ < 1$, $DLQ > 1$), and Underdeveloped ($SLQ < 1$, $DLQ < 1$). In the second stage, the hierarchy of agricultural activity centers was determined using a scalogram analysis, which measures the completeness of service facilities in each village. The feasibility of the analysis was tested using the Coefficient of Reproducibility (COR) with a threshold of 0.9–1.0. Accessibility and road network analyses were also conducted to identify the distribution mechanism for commodity marketing from production centers to marketing centers. In the third stage, the results of the analysis of superior commodities and agricultural activity centers were integrated to formulate agropolitan area development strategies.

RESULTS AND DISCUSSION

Identification of Potential and Superior Commodities

The analysis of the potential of leading commodities was conducted using a combined Static Location Quotient (SLQ) and Dynamic Location Quotient (DLQ) approach for 19 agricultural and livestock commodities in Cipeundeuy District. This approach measures current comparative advantages and projects future growth dynamics, resulting in an accurate classification for strategy formulation.

The results of the SLQ analysis show a significant shift in the agricultural economic base of Cipeundeuy District between 2019 and 2023.

Table 1. Comparison of SLQ Values of Basic Commodities in 2019 and 2023

No	Commodity	SLQ 2019	SLQ 2023	Status
1	Beef cattle	11.26	11.43	Stay Base
2	Broiler Chicken	4.59	1.27	Stay Base
3	Sheep	2.65	1.85	Stay Base
4	Buffalo	2.52	1.40	Stay Base
5	Kampong chicken	2.18	2.47	Stay Base
6	Goat	1.67	1.51	Stay Base
7	Coconut	1.46	1.19	Stay Base
8	Laying Hens	0.00	60.34	New Base
9	Peanuts	1.88	0.00	Lost Base
10	Mung beans	1.40	0.00	Lost Base
11	Cassava	1.13	0.27	Lost Base

Source: Analysis Results, 2025

In 2019, there were 11 commodities with SLQ values > 1 , dominated by the livestock and secondary food crops subsectors. By 2023, the number of basic commodities had shrunk to eight, with four secondary food crops (soybeans, peanuts, mung beans, and cassava) losing their basic status. This phenomenon indicates a structural transformation of the local agricultural economy, with the livestock subsector increasingly asserting its dominance.

Beef cattle consistently demonstrated the highest SLQ value, increasing from

11.26 to 11.43. This value indicates that beef cattle production in Cipeundeuy District is eleven times higher than the average contribution in Subang Regency. This superiority is supported by the availability of extensive grazing land, a favorable climate, and deeply rooted livestock farming traditions within the community.

Laying Hen commodity, with a drastic jump from 0.00 to 60.34. This surge occurred because commercial production had not yet been recorded in 2019, while in 2023, a medium-scale laying hen farm had developed in Wantilan Village.

Growth Prospects and Final Classification (DLQ)

The DLQ analysis for the 2019–2023 period measures the growth rate of commodities in Cipeundeuy District compared to Subang Regency.

Table 2. Results of DLQ Calculation of Commodities (DLQ > 1)

No	Commodity	DLQ	Interpretation
1	Beef cattle	11.40	Very rapid growth
2	Broiler Chicken	1.72	Above average growth
3	Duck	1.41	Potential to grow
4	Sheep	1.28	Positive growth

Source: Analysis Results, 2025

The DLQ value for beef cattle, which reached 11.40, represents a significant positive anomaly. This growth was driven by: (a) a beef cattle fattening program initiated by the Subang Regency Agriculture Office since 2020, (b) increasing demand for beef from the regional markets of Bandung and Jakarta, and (c) abundant green fodder availability throughout the year. Broiler chickens (DLQ=1.72) grew rapidly due to a short production cycle (35–40 days), flexibility in business scale, and high local market demand.

Interestingly, ducks (DLQ=1.41), which are still non-basic (SLQ=0.12), show promising growth potential, with a population concentration in Karangmukti Village (61%). This indicates an opportunity for livestock business diversification that can be encouraged through government programs.

Based on the integration of SLQ 2023 and DLQ values, commodities are classified into four categories as follows:

Table 3. Commodity Classification Based on SLQ and DLQ

Category	Criteria	Commodity	Policy Implications
Featured	SLQ>1, DLQ>1	Beef Cattle, Sheep, Broiler Chicken	Top priority: accelerating investment and development
Mainstay	SLQ>1, DLQ<1	Coconut, Buffalo, Goat, Free Range Chicken, Laying Hen	Revitalization and innovation to prevent stagnation
Prospective	SLQ<1, DLQ>1	Duck	Program support to encourage growth
Left behind	SLQ<1, DLQ<1	Mango, Durian, Banana, Papaya, Corn, Rice, Soybeans, etc.	Meeting local needs, not a development priority

Source: Analysis Results, 2025



Spatial Distribution of Leading Commodities

Mapping the distribution of superior commodities shows a clear concentration pattern and is an important basis for spatial planning of agropolitan areas.

Table 4. Spatial Distribution of Leading Commodities per Village

Commodity	Main Concentration Village	Percentage	Regional Characteristics
Beef cattle	Sawangan	60%	Hilly topography, extensive grazing land
	Cipeundeuy	31%	Subdistrict center, good transportation access
Sheep	Karangmukti	39%	Medium density, strong farming traditions
	Sawangan	32%	Medium density, strong farming traditions
Broiler Chicken	Wantilan	40%	Near main transportation routes
	Kosar	26%	Near main transportation routes

Source: Analysis Results, 2025

This distribution pattern demonstrates regional specialization based on agro-ecological and socio-economic suitability, with no single village dominating all commodities. This situation is ideal for the development of an agropolitan area because it creates functional interdependence between villages: Sawangan and Karangmukti serve as centers for ruminant production, while Wantilan and Kosar serve as centers for poultry. This specialization allows for focused and efficient infrastructure and institutional development.

Hierarchy of Activity Centers and Marketing Mechanisms

Scalogram Analysis and Hierarchical Structure of Service Centers

Scalogram analysis was conducted on 14 types of socio-economic service facilities in seven villages. A Coefficient of Reproducibility (COR) value of 0.96 confirms the reliability of the analysis results as a basis for decision-making.

Table 5. Hierarchy of Cipeundeuy District Service Centers

Hierarchy	Order	Village	Score	Featured Facilities	Main Function
I	Primary Center	Cipeundeuy	12/14	Market, Bank, Hospital, Terminal, Health Center	Collection, distribution, service center
II	Secondary Center	Arch	6/14	Market, Bank, BPP	Distribution sub-center, extension
III	Tertiary Center	Wantilan	5/14	Market, Medical Center	Environmental services, sub-collection
IV	Hinterland	Kosar	3/14	Limited BTS	Primary production area
IV	Hinterland	Sawangan	2/14	Limited BTS	Primary production area
IV	Hinterland	Karangmukti	1/14	Limited BTS	Primary production area
IV	Hinterland	Cimayasari	1/14	Limited BTS	Primary production area

Source: Analysis Results, 2025

Cipeundeuy Village (Center I) boasts the most comprehensive facilities and serves as a major hub for economic activity. The presence of a market, terminal, bank,

and hospital makes it a central location serving the entire sub-district. Its position as the sub-district capital further strengthens its strategic role. Lengkong Village (Center II) boasts the distinct advantage of being the location of the Agricultural Extension Center (BPP), which is vital for technology transfer and farmer mentoring. Wantilan Village (Center III) serves as an environmental service center with its market and medical center.

The lack of infrastructure in four hinterland villages poses a serious challenge. These villages have only BTS towers and limited minimarkets, without direct access to markets, banks, or adequate healthcare facilities. This situation forces farmers to rely on middlemen, weakening their bargaining power and reducing profit margins. The absence of cooperatives and agricultural input kiosks at the village level also hinders farmers' access to quality agricultural inputs.

Hierarchical Marketing Distribution Mechanism

Based on the hierarchical structure of service centers and analysis of road network accessibility, an integrated commodity marketing distribution mechanism is designed in four stages:

Table 6. Stages of Marketing Distribution Mechanism

Stage	Channel	Main Activities	Supporting Infrastructure
1	Center IV (Production)	Production and collection by farmer groups/village cooperatives	Village road, agricultural equipment kiosk
2	Center IV → Center III/II	Distribution, sorting, <i>grading</i> , simple packaging	Village road to the sub-district
3	Center III/II → Center I	Commodity collection, value added processing (RPH), storage	District and regency roads
4	Center I → Regional Market	External distribution to PKL Subang, PKW Bandung, Jakarta	Provincial roads, national arteries, Pantura Toll Road

Source: Analysis Results, 2025

Stage 1 Village-Level Production and Collection (Center IV): Superior commodities are produced in hinterland villages according to their specializations. Beef Cattle from Sawangan, Sheep from Karangmukti and Sawangan, and Broiler Chickens from Wantilan and Kosar. Collection is carried out by farmer groups or village cooperatives to improve farmers' bargaining position. Stage 2 Distribution to Tertiary and Secondary Centers (Centers III and II): Production is taken to Center III (Wantilan) or Center II (Lengkong). At Center II, the presence of BPP allows for simple sorting, grading, and packaging processes. Village roads to Centers III and II are a priority for infrastructure improvement. Stage 3 Collection and Distribution at the Main Center (Center I): All commodities are collected in Cipeundeuy Village. Here, value-added processing processes such as slaughtering and packaging of meat at the Slaughterhouse (RPH), final sorting, and storage take place. Stage 4 External Distribution to Regional Markets: From Center I, commodities are distributed through three main corridors: (a) the southern route to PKL Subang City and PKW Bandung, (b) the western route to Purwakarta Regency and the Jakarta corridor, and (c) access to the Pantura Toll Road for the northern West Java and Jakarta markets. Connectivity to the Pantura Toll Road is a strategic asset that opens access to markets with high purchasing power.

Strategic Implications of Agropolitan Area Development
Main Superior Commodity Development Strategy

Table 7. Development Strategy per Leading Commodity

Commodity	Main Strategy	Operational Program
Beef cattle	Increased investment and processing	1. Low interest investment credit (KUR)
		2. Construction of a hygienic standard slaughterhouse at Center I
		3. Livestock feed and health management training
		4. Partnership with the meat processing industry
Sheep	Product breeding and diversification	1. <i>recording</i> and breeding system
		2. Nursery center in Karangmukti Village
		3. Production scheduling for seasonal demand
		4. Product diversification: frozen meat, packaged satay
Broiler Chicken	Partnerships and market access	1. Core-plasma partnership with feed companies
		2. <i>Cold storage</i> in Centers I and II
		3. Contracts with restaurants, hotels, catering
		4. Biosecurity management training

Source: Analysis Results, 2025

Growth Center and Infrastructure Development Strategy

Road infrastructure development is an absolute prerequisite for the functioning of hierarchical marketing mechanisms. The road improvement strategy is implemented in three priority stages:

Table 8. Priorities for Road Infrastructure Improvement

Priority	Road Section	Target	Target
I	Village road Center IV → Center III (Sawangan–Wantilan, Karangmukti–Lengkong)	Improved asphalt quality to hotmix, sufficient width for livestock transport trucks	Smooth distribution from production centers
II	Central sub-district/regency roads III/II → Center I (Lengkong–Cipeundeuy, Wantilan–Cipeundeuy)	Increasing road capacity for year-round mobility of goods and services	Connectivity of service centers
III	Central Access I → Provincial Road (Primary Artery) → National Road → Pantura Toll Road	Strengthening access to reduce travel time and logistics costs	Competitiveness and opening new markets

Source: Analysis Results, 2025

Revitalization Strategy for Mainstay Commodities and Support for Prospective Commodities

Table 9. Commodity Revitalization and Support Strategy

Category	Commodity	Strategy	Program
Mainstay	Coconut (SLQ=1.19)	Plant revitalization and product diversification	1. Plant rejuvenation with superior varieties 2. Diversification: VCO, coconut sugar, coconut shell crafts 3. Organic certification for export markets
Mainstay	Free Range Chicken (SLQ=2.47)	Intensification and branding	1. Semi-intensive technology 2. <i>Branding</i> "Cipeundeuy organic free-range chicken" 3. Small scale chicken slaughterhouse
Prospective	Duck (DLQ=1.41)	Growth support	1. Assistance with superior meat and egg seeds 2. Integrated maintenance training (minapadi-duck) 3. Salted egg and processed duck meat products 4. Market access to restaurants and hotels

Source: Analysis Results, 2025

Strengthening Institutions and Human Resources

The success of the agropolitan development strategy is highly dependent on institutional capacity and the quality of human resources. The existence of 39 farmer groups and 1 BPP in Cipeundeuy District constitutes social capital that needs to be optimized through: (1) Revitalization of farmer institutions: Transformation of farmer groups into cooperatives or business-oriented Village-Owned Enterprises (BUMDes). (2) Development of Gapoktan: As a collective economic institution at the village level to increase economic scale and bargaining position. (3) Increasing human resource capacity: Training in business management, digital marketing, and financial literacy for farmer group administrators. (4) Technology transfer: Field school and demonstration plot programs (demplot) for the transfer of modern cultivation technology. (5) Holistically, the agropolitan area development strategy in Cipeundeuy District integrates a sectoral approach (commodity development) with a spatial approach (development of growth centers), supported by infrastructure improvements, institutional strengthening, and human resource development. This integration will create a significant multiplier effect, encourage inclusive economic growth, and improve the welfare of rural communities in a sustainable manner.

CONCLUSION

Based on the analysis and discussion, this study produces three main conclusions integrated within the framework of agropolitan area development in Cipeundeuy District. **First**, the integration of SLQ and DLQ analysis on 19 commodities identified Beef Cattle (SLQ=11.43; DLQ=11.40), Sheep (SLQ=1.85; DLQ=1.28), and Broiler Chicken (SLQ=1.27; DLQ=1.72) as priority superior commodities. Mainstay commodities that require revitalization include Coconut, Buffalo, Goat, Free-Range Chicken, and Laying

Hens, while Duck (DLQ=1.41) is a prospective commodity. Spatial distribution shows regional specialization that creates functional interdependence between villages. Second, scalogram analysis with COR 0.96 establishes a four-level service center hierarchy: Cipeundeuy Village as the Main Center (score 12/14), Lengkong Village as the Sub Center (score 6), Wantilan Village as the Environmental Service Center (score 5), and four hinterland villages as production areas (score 1-3). The marketing mechanism operates in stages from collection at the village level, distribution to secondary centers, value-added processing at the main center, to distribution to regional markets via the Pantura Toll Road. Third, the agropolitan development strategy includes: (a) prioritizing capital assistance and technical assistance for superior commodities; (b) revitalizing flagship commodities through product diversification and branding ; (c) program support for prospective commodities; (d) gradual improvement of road infrastructure from village roads to access to the Pantura Toll Road; and (e) strengthening farmer institutions through the transformation of farmer groups into cooperatives or BUMDes. Overall, the development of the agropolitan area in Cipeundeuy District rests on three main pillars: the development of superior commodities based on regional specialization, strengthening the hierarchical structure of agricultural activity centers supported by integrated accessibility, and implementing a strategy that includes capital support, technical guidance, and gradual road infrastructure development. The holistic implementation of this strategy will create a significant multiplier effect, encourage inclusive economic growth, and sustainably improve the welfare of rural communities.

BIBLIOGRAPHY

- Central Statistics Agency. (2023). Subang Regency in Figures 2023. Subang: BPS Subang Regency.
- Central Statistics Agency. (2024). Cipeundeuy District in Figures 2024. Subang: BPS Subang Regency.
- BPP Cipeundeuy District. (2023). Annual Report of the Agricultural Extension Center . Subang: Subang Regency Agriculture Service.
- Djakapermana, RD (2003). Development of Agropolitan Areas in the Framework of Regional Development Based on National Spatial Planning . Jakarta: Directorate General of Spatial Planning, Department of Settlements and Regional Infrastructure.
- Friedmann, J., & Douglass, M. (1978). Agropolitan Development: Towards a New Strategy for Regional Planning in Asia. In FC Lo & K. Salih (Eds.), Growth Pole Strategy and Regional Development Policy: Asian Experiences and Alternative Approaches (pp. 163–192). Oxford: Pergamon Press.
- Hendayana, R. (2003). Application of the Location Quotient (LQ) Method in Determining National Superior Commodities. *Journal of Agricultural Informatics*, 12, 1–11.
- Republic of Indonesia. (2007). Law Number 26 of 2007 concerning Spatial Planning of the Republic of Indonesia State Gazette of 2007 Number 68. Jakarta: State Secretariat.
- Rondinelli, D. A. (1985). Applied Methods of Regional Analysis: The Spatial Dimensions of Development Policy . Boulder: Westview Press.

- Rustiadi, E., Saefulhakim, S., & Panuju, DR (2009). *Regional Planning and Development* . Jakarta: Yayasan Pustaka Obor Indonesia.
- Septiawan, Y., & Mardiah, ANR (2025). Analysis of Sustainability of Agropolitan Area Development (Case Study: Sepatan District, Tangerang Regency). *REGION: Journal of Regional Development and Participatory Planning*, 20(1), 187–209.
- Suyatno, A. (2000). Analysis of Location Quotient and Dynamic Location Quotient in Determining Leading Sectors . *Journal of Economics and Development*, 8(1), 45–58.
- Tarigan, R. (2014). *Regional Economics: Theory and Application (Revised Edition)*. Jakarta: PT Bumi Aksara.
- United Nations ESCAP. (1979). *Guidelines for Rural Center Planning* . New York: United Nations Economic and Social Commission for Asia and the Pacific.

