

# Sustainability of Agricultural Settlement in Urban Periphery

The Case of: Cihideung Village Settlement  
Parongpong Sub District, Bandung Municipality

Written By :  
Lucy Yosita

## Abstract:

*Cihideung Village is located in peripheral area, in the north of Bandung Municipality. This is 445,410 Ha in area. Planting, either for horticultures or for flowers has been being done by local communities in this place and other villages in Lembang-Area since 1930 (since four generations ago-since the Dutch Colonialism Period). Until 1985, Cihideung did not get high impacts of city developments. The roads were still not in permanent condition. Cihideung and around were still traditional villages, that only a few peoples came there. Selling farm products by Cihideung Village communities was also been done since long time ago, but it was still conventional. They sold horticultural products to nearest marts and sold flowers around the city using pushcarts.*

*However, noted from 1986 to 2003, the market opportunity for many kinds of flowers was coming better, due to the increasing number of tourists who have come there and around. Besides, it is also caused by a large number of consumers who have been coming and buying flowers in big quantities for further sale. Big cities always grow due to population growth and migration. Bandung City has been growing too until peripheral area. Not only private-actors but also many groups of actors have bought lands and built many kinds of facilities there, consisting of: residential facilities, recreational facilities, commercial facilities, official facilities, educational facilities, etc. In fact, all of those activities have reduced farmlands in Cihideung Village.*

*The analysis in this study has proven that, the above phenomenon have significantly increases the building coverage of the area. The most significant impact was in horticultural farm, there were reduction in farmlands for horticultures and reduction in horticultural products. However, the reductions of farmlands for flowers were less evident than the reduction of farmlands for horticultures. Flowers farm had better contribution for farmers and their settlements. Besides, it was found that a large number of farmlands belong to local communities in Cihideung agricultural settlement were on communal ownerships. On those lands, a large number of Cihideung farmers planted and sold farm products together.*

*Based on the results of all analysis, it can be predicted that the decreased of farmlands will still continuously occur in Cihideung Villages. In the future, it will still occur from south to north because of many kinds of the city developments in high intensity. However, according to the analysis, even in this condition a large number of farmlands for flowers will still be able to maintain their existence.*

**Key Words:** sustainable settlement, agricultural environment, urban peripheral area

## Introduction

Bandung City has special character, land fertile, nice sightseeing, historic architecture buildings, and high value of culture. Regarding to its development process, Bandung is categorized as the city that has various study cases which are necessary to be analyzed. However on the other hand, various development processes have been done without ripe consideration, even ignore regulations. Many actors of development compete, either by groups or by individuals. Moreover, there are exists, unplanned of restoration to historical buildings, development of many functions of buildings without clear regulations, high expansion of farming lands, etc. On the other hand, the city's government couldn't appropriately control high growth of the city.

Meanwhile, Sastrosasmita (1989) mentions several strong reasons which causing urban farming and urban agriculture is always becomes essential in Asia included in Indonesia, they are:

1. The form of villages in the city will usually move to peripheral area, become the sub system of the city which actually will never be loss.
2. The adequate fertilization of lands will still become attractive to be cultivated though in more modern in scale of margin: hydroponics, cutting-flowers, new variety of flowers, and so on.
3. The government will never release subsidy that is become the push factor for farming, though the country has becoming included in developed countries.
4. There is the tendency of increasing in farming activity as part of hobby for modern communities (farm hobbies).
5. There is the resistance of farmers though it is exist, change of function in many forms, from land farming into other functions.
6. The more modern urban agriculture can utilise environment rente amenities, harmonious with human being that highly considering human values – harmony with nature.

Cihideung Village-Settlements, Parongpong Sub District, Bandung Municipality, the study case as the central object in this writing, is located in the north of boundary area between Bandung City and Bandung Municipality (look at The Picture 1). Planting flowers and horticultures have been being done by local communities since the occupation period of The Dutch. Until 1986, Cihideung Village was still similar to other villages in the surroundings area of Bandung. In that time, horticultural and flowers had been being cultivated by communities. City's development has influenced location and also surroundings as well as land purchasing by city's communities which have also occurred. However noted those all didn't disturb life system in the location.





Furthermore, since 1986 developers have been coming to location so the population rate has significantly increased, both due to natural population rate and also due to urbanization. All of that is because of lands which are to be restricted in the central area of the city so the development of housing moves slowly until urban peripheral area. While this research had been being done, noted that the growth of private housing in Cihideung Village as can be seen on the table below:

**Table 1**  
**Developers who had built in Cihideung Village until 2000**

	Time of development	Developer	Kind of Building	Total in width	Land function before
1	1993	PT. ANTAR GRIYA SENTOSA	Villa Estate	60	Rice-Field
2	1994	PT. TRINITY AGUNG PERMAI	Housing	25	Mixed Field
3	1994	PT. SURYA AGUNG PURNAMA	Housing and Villa Estate	50	Grass Field
4	1994	PT. PONDOK HIJAU PERMAI	Housing and Real Estate	20	Grass Field
5	1992	PT GRACIA BUDI PRATAMA	Housing and Villa Estate	160	Mixed Field and Rice Field
6	1994	PT. SURYANA MEGAH LESTARI	Housing and Villa Estate	50	Mixed Field

Source: www.google.com about estate in Bandung

## The Formulation of Problems

According to the condition of location that has been described above, the next step by this research further is studying to phenomena and predicting how the sustainability of Cihideung Village agricultural settlement in the future. The central problem is high pressure of city's growth until peripheral area, included in where this agricultural settlement taken place.

Questions based on problems that have been described above are as following:

1. Will farming and the settlements have ability to dependent them self though under pressure of invasion of city's development?
2. What are factors causing the ability to dependent?
3. From this research, then what researches as recommendation which will be required further?

## Methodology

### Data Collecting Method

There are 3 ways of proceeds will be used in data collecting, comprise of:

1. Study cases
2. Field survey
3. Literature survey

### Analyse Method

Data which have been founded then analyzing by both quantitative method and qualitative method, further comparing each result from both two methods. The completion of data from study cases field survey and literature survey is certainly required in order to find adequate conclusions and also recommendations.

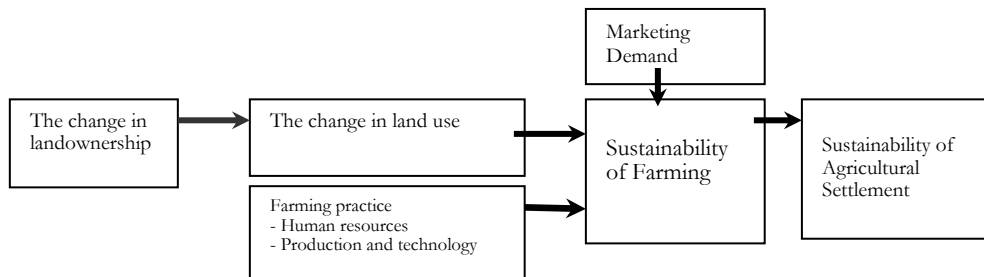
## Theory

Fast growing city phenomenon, seen from many points of view, usually affects to the development process of urban peripheral area become unplanned area (Chouguill: 1983). Meanwhile Thomas (1990) points out, in fact, often occurs conflicts of land use upon farming lands located in the urban peripheral (rural-urban fringe area) becoming city housing, commercial facilities, which further becoming the pressure into farming lands. Besides descriptions above, several problems are as follows: high transport value, service value and also rising of various social problems. By these, consequently, it would be difficult to reach the sustainability of agricultural settlement in urban peripheral area.

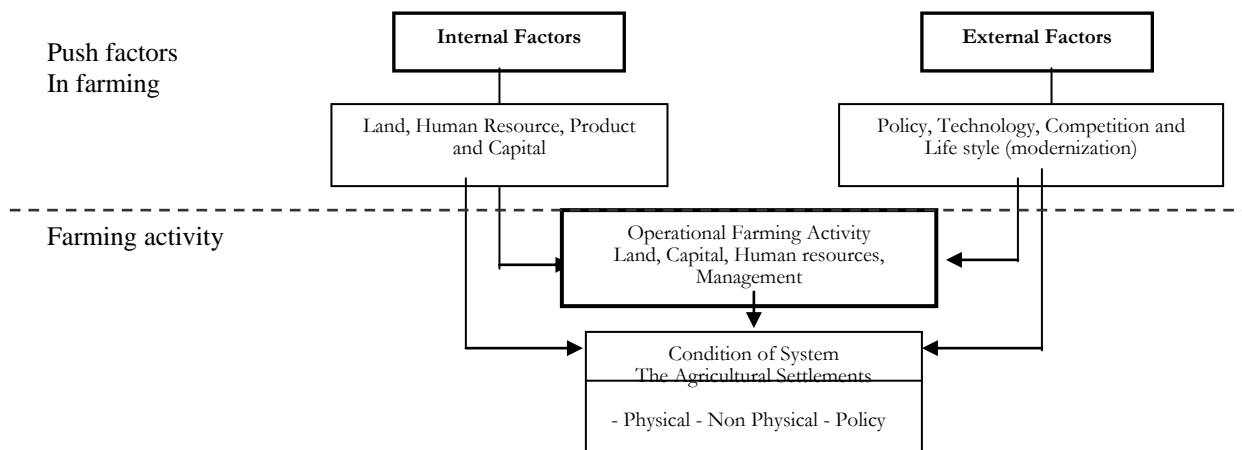
Chouguill (1983) points out, in fact, a large numbers of farmer moves on location and also in their job in order to gain more adequate of life. Associated with this, Shirvani (1985) explains that the dynamic of city's growth affects to the formation of agricultural settlement in urban peripheral area, regarded from physical

aspects and from social aspects. Furthermore, the agricultural settlements in the city's countryside should also have special characteristic that is ability to maintain the balance although there are changes, either in physical or in social aspect. Without this, indeed sustainability will be hard to be reached.

Two diagrams below clearly show the problems and associated factors:



**(Diagram 1) Relationship inside aspects and its effect on toward Sustainable Agricultural Settlement**



**(Diagram 2) Internal and External Factors as Push factor of The City's Agricultural Activity**

Meanwhile, Houghton and Hunter (1994) explains, an environment with specific concentration of activity in the urban peripheral will have more chance of dependent if this is located on the strategic network of transportation way. However, the requirement is it must as a solid environment. But, the statement of Pugh (1996) is necessary to be underlined, that it is hard to solve city's countryside problems because there is exists, conflicts of function. Even, the policy maker regards it is not easy to control high growth rates of urban peripheral area.

## Analysis

Regarding to overall processes of the growth in Cihideung Village, flowers were cultivated dominantly. Besides for decorating home yard, the other function of flowers is as supporting facilities in many ceremonials either in family ceremonials or in state ceremonials. The last utilization has the higher needs of flowers. After the improvement of roads in 1986, flowers selling have significantly increased. Before that, local communities had only restricted of market opportunity, they only sold flowers by going surround the city using pushcarts. However, they were further getting increase in capital. So that they able to bought pick up car and started to gain the wider chance in market, until out of the Bandung city. In the same time, Central Government came to location and interested in giving help of capital for the development of Cihideung Village.

In this place, there are many *paguyuban* or *kelompok tani*. At first, the formation of those was sponsored by Association of Central Government, Regional Government and Village Chief. There are included in Village Chief: Kelompok Petani Anggrek, Kelompok Petani Bonsai, Kelompok Petani Teratai Air and so on. Besides these, also be found Koperasi Usaha Tani contributes in providing capital as well as farming tools.

In fact, usually urban development can not be avoided. The bigger of development intensity therefore will the faster its effect into the movement of development, until urban peripheral area in the wider of radius. The developments not only housing development but also other kind development of facilities, encompass: recreation facilities, official facilities, or education facilities. A large numbers of capital owners purchased

lands either by groups or by personals. Then the increasing of urban development impact to needs of road facilities. However, noticed, the improvement of roads have obviously pressured the development in location, the more so in area located on road edges. Besides housing built by developers, there are a large numbers of housing built by individuals of urban communities who have purchased lands. The easiness accessibility to this location from central urban, then make them interested in spending their capital to purchase lands. Noted, the land value in location at least Rp. 600.000,-/ m<sup>2</sup>.

Meanwhile, also Cihideung Village and surrounding is grown up as recreation area. Developers built various kinds of recreation facilities, like: Mini-Market, Children Playing-Space, Sport Facilities, and so on. Many investors developed restaurants, majority supporting theme “eating by enjoying sightseeing of nature”, as examples: The Peak Café, Kampung Daun, Sapulidi Restaurant, and so on. A part of private housing that is categorized as villa, often visited by the owners or rented occasionally in the weekend or national holidays.

Local communities had good ability to response the improvement of roads and also to response aids and loans from the government. By the time, local communities able to expand flowers market, sell flowers in bigger quantity (big-part selling), also they can sell products until out of the city. Occasionally, mostly in holidays selling of flowers increases significantly, because visitors who come to location not only from Bandung but also from out of the city.

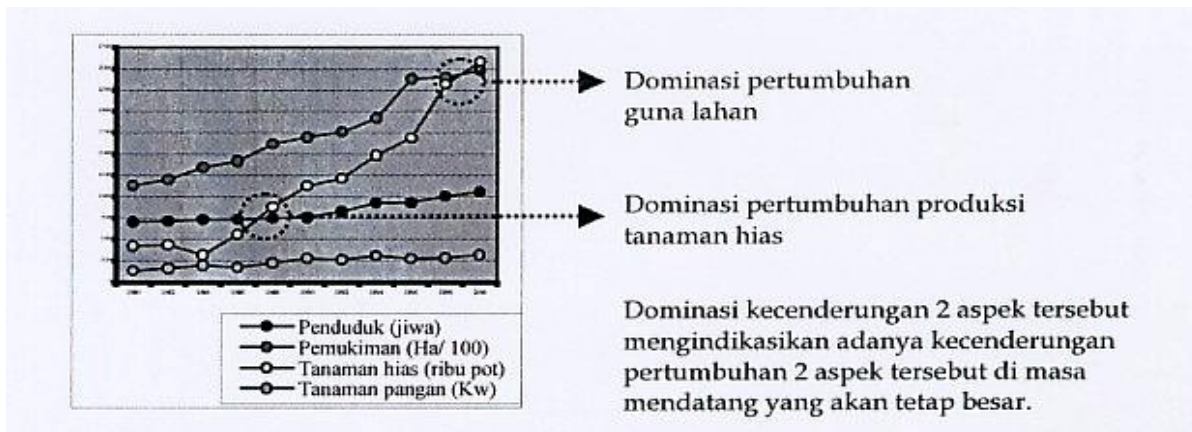
Before we are going to further analysis, this table following presents assessment to Cihideung Village:

**Table 2**  
**POTENTIALS AND CONSTRAINTS OF CIHIDEUNG AGRICULTURAL SETTLEMENT**

POTENTIALS	CONSTRAINTS
<ul style="list-style-type: none"> <li>There are a large numbers of customers and also the wider market opportunity of flowers market (based on Data of Dinas Pertanian Jabar, Lembang and surrounding are contributed to supply 85 % of flowers need for Indonesia, and 70 % of this, supply by Cihideung Village.</li> <li>There are routine customers, either from Bandung and also from out of the city, such as: Padang, Jambi, Semarang, Surabaya, and so on</li> <li>There are more various utilisations of flower and also in more high of quantity. Besides for decorations, utilisation is for raw material either for perfumery or medicines, as well as another product.</li> <li>Farmer’s income rate is categorized high. Majority of farmers have income in range Rp. 900.000,- - Rp. 1.500.000,- per month. Several local communities who have the other exertions, such as: horticultures farming, rental of carry car, etc), have higher income rate. In harvest phase, they can get at least Rp. 10.000.000,- per month.</li> <li>There are still have better chance of market, such as: export market, however must consider higher inquiries in quality of products</li> </ul>	<ul style="list-style-type: none"> <li>A large amount of lands have no legal certifications, even there are exist double land ownerships. Noted, 672 kavling have legal certificates meanwhile 874 kavling have no legal certificates. The last are utilising by rent system or non rent system (informal).</li> <li>There is UU no 56 1960 about land ownership had had contribution to regulation of maximal land ownership, so that a large amount of lands were became “without legal land ownership”.</li> <li>There is support of Regional Government, but there is no warrant of sustainability of land use in long term (both in rules and in implementation). The evident was occurrence in 1990 there was releasing of lands in large scale from farming communities to developers. It had ever occurred without coordination with local communities).</li> </ul>
<ul style="list-style-type: none"> <li>There are human resources who work as farmers (farmer family) at least 4000 from totally of population 11.091.</li> </ul>	<ul style="list-style-type: none"> <li>There is rising of land value that is usually encourages desire of a part of local communities to sell their lands, as far as their lands are not productive enough. Noted, the land value at least Rp.600.000,- – Rp. 1.500.000.</li> </ul>
<ul style="list-style-type: none"> <li>There are human resources who running farming business as skill that bequeathed from old generation to the younger.</li> </ul>	<ul style="list-style-type: none"> <li>There is still no long term system of land rent. Whereas, those are so many occur in location, become the alternative way for a part of farmers who have no land.</li> </ul>
<ul style="list-style-type: none"> <li>There is the solid system of <i>koperasi</i> and <i>paguyuban petani</i>.</li> </ul>	<ul style="list-style-type: none"> <li>There are potential of other functions, for example: commercial or recreation always attracts investor to build. Furthermore, there are so fast the change of land ownership and land use.</li> </ul>
<ul style="list-style-type: none"> <li>The potent of land and climate is very adequate to cultivation either for flower or for horticulture.</li> <li>There are still exist natural lands which have not been productive yet, approximately 30 % from all of the lands.</li> </ul>	<ul style="list-style-type: none"> <li>The growth of housing development: real estate, villa, etc, so high in this location and also surroundings. Noted throughout 12 year (1990-2002) 98 Ha or 22 % from all over village lands have changed natural lands to another function, such as: forest, yard, rice-field, and so on. Along with this, farmers are getting pressures, finally they further utilise open forest land for farming.</li> </ul>
<ul style="list-style-type: none"> <li>PEMDA Kabupaten Bandung give support to local community, such as: aid for improvement of settlements as well as public facilities. However if it is seen from the recently condition, in fact much more improvement is still should be needed, the more so there are so fast of the growth of urban development in various function.</li> </ul>	<ul style="list-style-type: none"> <li>Rate of annually population in this area at least 2,42 %, will still continuously increases new need of housing (either for local community or new comer), always becomes constraint for natural lands.</li> <li>The prediction of housing need in the future for Cihideung Village is approximately 80 houses per year or 800 houses per 10 year.</li> </ul>
<ul style="list-style-type: none"> <li>Almost all of throughout Sersan Bajuri Streets (7,2 km in the length) is included in the zone of Cihideung Village. This is can be as push factor to flowers market. Nevertheless, either this road or other roads in surroundings are still need improvement.</li> </ul>	
<ul style="list-style-type: none"> <li>Cihideng Village became the winner in Village Competition 1995 and 2000. It can be as positive added value, mainly regarded from skill of human resources to maintain and to manage their area.</li> </ul>	
<ul style="list-style-type: none"> <li>The potent of this area as recreation area can be an external factors to the growth of flowers market.</li> </ul>	

Source: Results of analysis

Meanwhile, the following diagram more completely presents quantitative analysis of local community settlement on condition the growth of the city that has been going on in this location. It is found from quantitative calculation to primary data (data about the growth of location during the last of 20 years, 1980-2002):



**(Diagram 3) Result of Data Compilation**

Regarding to the process of growth of Cihideung Settlements has dominantly indicated the communal system of land use. It means, in one of the width of land for example 500, 1000, or 2000 meter square, further several heads of family are used to cultivating together, mostly for flowers farming. Often several head of families cultivate flowers upon a compartment of certified land. While private housing was recently started to be developed, there were changes of land ownership to private sectors, because almost all local communities didn't have legal certificate. However, looking at the data from BPN about the growth of land certification belong to local communities, can be known that effort of local communities in maintaining their lands was becoming better than the prior, more clearly as have been explained in previous table of potentials and constraints.

**Table 3  
Land Ownership (2000)**

Land ownership (width)	Total (Person)
Less than 0,1 Ha	1801
0,1 – 0,5 Ha	1311
0,6 – 1,0 Ha	668
1,1 – 1,5 Ha	24
1,6 – 2,0 Ha	-
3 – 5 Ha	-
6 – 8 Ha	-
9 – 10 Ha	-
More than 10 Ha	3

Source: Monografi Desa Cihideung 2000 and BPN Kab.Bandung

In fact, noticed, there are changes of space character inside settlement of local that particularly influenced by many factors of the growth of the city, as follows:

- There is street becoming new orientation.
- There are locations where have better opportunity to attracting buyers.
- There is exist, sustainable communal system among local communities.

It will be more clearly if we look at land use patterns in location as pictures can be seen in two further pages.

Besides affects to physical condition, the growth of the city is also affects into social conditions of local communities. The easiness of access to the city centre, completion of education facilities, health centre facilities, community service facilities, and the present of city's community to location, further those all slowly affects into formation of local communities quality. It seems that is match with (Bryant: 1982), that human development index criteria should increases within settlements system in where influenced by the growth of the city, such as physical impacts and social impacts. Noted, there are a large numbers of local communities in this location have graduated from Senior High School, moreover a part of them can pursue to university. Not a few who have graduated from University as well as from Department of Farming. Therefore they are capable of making expansion on their farming activity.

**Table 4**  
**Level of Inhabitans Education (1995 and 2000)**

No	Education	1995	2000
1	Graduated from SD + Pesantren	1045	1.732 + 57
2	Graduated from SMP	1598	2.385
3	Graduated from SMA + Madrasah	1833	3.561 + 1.863
4	Graduated from Akademi (D1 - D 3)	13	93
5	Sarjana (S1 – S3)	62	107
6	Skills Course	30	75

Source: Monografi Desa Cihideung 1995 and 2000

From description above, it seems that in one point view, the growth of the city often becomes a constraint for farming activity located in urban peripheral. Nevertheless, the statement of Davidson and Wimberley is essential to be highlighted, that high growth rates of the city will also attract communities from the central city to come there. Often, the urban peripheral is becomes as an attractive choice to spend their holidays (recreation area/ weekend trip zone), leave urban-area as day trip zone. So that, if urban peripheral area could be managed and also managed properly, is actually probable to give added value.

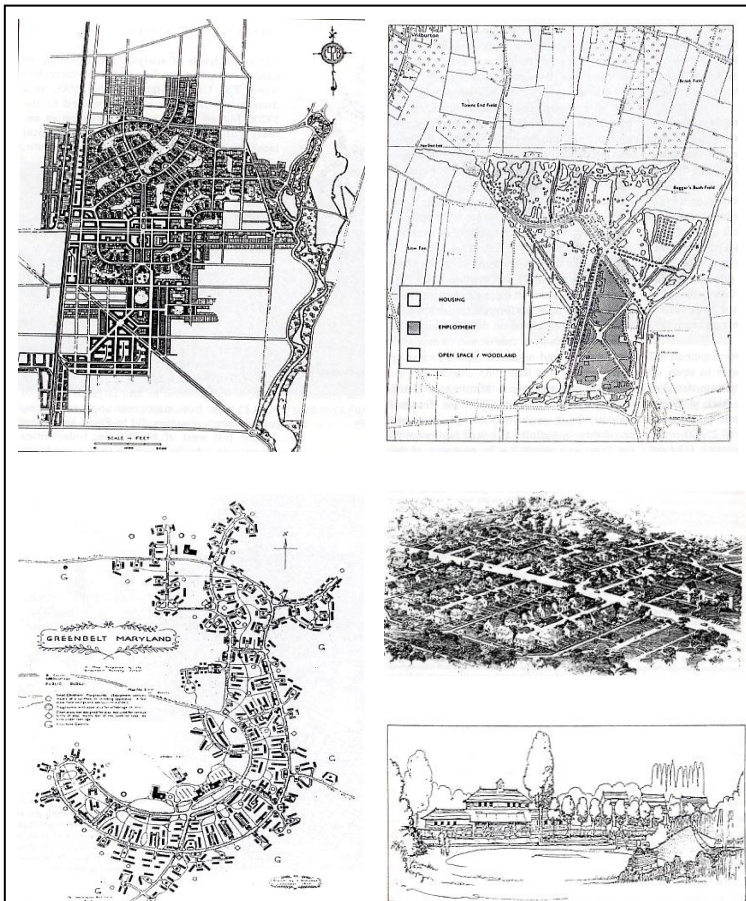






## Comparison of Study Cases

Agriculture in The City's Countryside to Sustainable City, Reality or Utopian ?



**(Picture 5)**

The Garden City Movement in many countries around the world was occurred from the edge of 18-th century to the early of 20-th century. This movement was as a response to the rush of the city in where became more congested so that high competition was occurred.

The main idea of by Garden City Movement is expected to plan the city more naturally as well as more humanity. If seen carefully, there is arrangement of city's housing by using theme "garden". Not certainly inhabitants of these were farmers.

A part of designs applied this concept then could be persist, but due to one and more factors then another part could not be maintained.



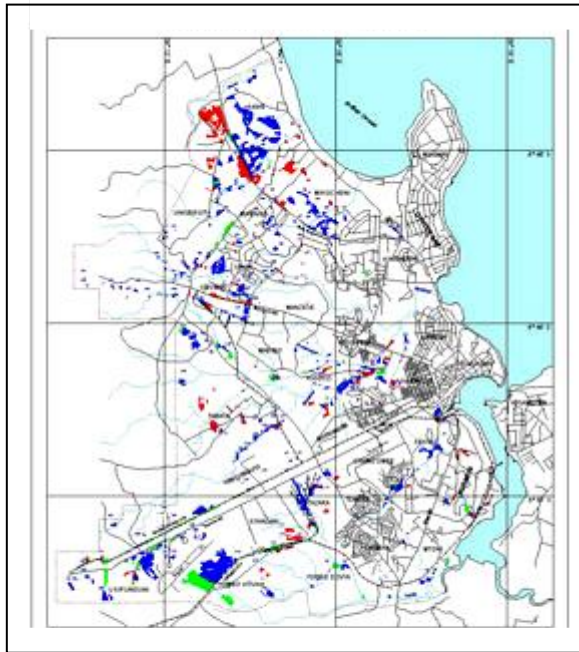
**(Picture 6)**

Farming practice is essential aspect, contributes on towards sustainable urban agriculture. In many foreign countries whose lands is restricted, like: England, Nederland, Japan and so on, farming can even grow properly. The consideration to place farming area becomes harmonious with the city's system-is actually as the essential factor.



**(Picture 7)**

Royal Botanical Garden, Kew, England is 120 Ha in area. There are displays of various plants (rose, water lily, palm, bamboo bonsai, etc), restaurant, cottage, museum, pagoda, temple, river walk, marine display, forest conservation, etc. All of those were planned based on grouping by visiting route. Besides as conservation area this area also has functions for recreation place as well as education place.



**(Picture 8)**

It was more known as project and research Urban Vegetable Promotion Project (UVPP) Dar Es Salaam 1999-2000. Implementation of this was sponsored by local agricultural department and also by GTZ (German Technical Cooperation).

It was project and sustainability analysis of horticulture farming environment, the case of study was urban peripheral area, Dar Es Saalam, Tanzania. This planning was based on the real problems, in which the annually population rate was 7-10%. At first, 650 Ha of this location was inhabited by 4000 farmers. Due to various pressures of city's development so there was exist high invasion to the land. Noted, from 1992 to 1999 (7 year), have merely remained 120 Ha of productive land. In short, this study was attempted as long term planning that would be useful for the growth of the city.

## Conclusion

There are many factors deals with the sustainability of agricultural area in urban peripheral area. From this study case has been founded that communal system of local communities has dominantly emerged in Cihideung Village. This habit is also effect to:

1. Land use
2. Expanding of market.
3. Culture of working together in developing cultivation as well as in its technology which being applied.

However, the tendency that has occurred is the pressure of flowers farming into horticultural farming, as we know horticultural farming needs longer time to practice and also needs the wider land area. Noted, horticultural product did not significantly increase.

The sustainability of agricultural settlement in urban peripheral area is often hard to be reached. However it is not mean, impossible to be reached. In many foreign countries, moreover that only have restricted width of land, agricultural environment could be placed properly in city's system. Therefore, it is becoming possible to reach sustainable city. From this study that had been done and from theory analysis as well as comparison study, might be concluded that sustainable agricultural settlement can be achieved by providing this with macro considerations as well as micro considerations, all in similar term; thinking within city's scope. As micro aspects in this task, it is the importance to think of various aspects that associated with farming practice. Every study case has its own character (specific). However, based on analysis above, in brief, Cihideung Village could be marked has special condition, so that, indeed sustainable agriculture will still have an expectation.

Therefore, based on this research, there are several recommended researches which are essential to being done in location, as follow:

1. Analysis to Patterns of Land Use in Around of Cihideung Agricultural Settlement, Parongpong Sub District, Bandung Municipality.
2. Strategy of Planning and Development to Urban Agricultural Settlement: Analysis to Prospect and Modelling Land Management Approach Towards Planned and Sustainable City.
3. Strategy of Designing Urban Agricultural Settlement: Analysis to Prospect and Modelling Land Management Approach Towards Planned and Sustainable City.

## References

- Chouguill C.L. (1983), Crisis, Chaos, Crunch? Planning for Urban Growth in Developing Word, **Journal of Urban Studies**, Vol 31, No 6
- Frey, Hildebrand. (1985), Designing Toward a more System Urban Form the City, **Journal of Urban Studies**, Vol 35, 1998
- Jurnal Perencanaan Wilayah dan Kota**, Vol 9, No: 1 edisi 1 Januari 1989, Bandung
- M.A. Quazi, Akef. (1982), Some Observation on Rural Development in Malaysia, Third World Planning Review, **Journal of Urban Studies**, edisi 4 November 1982, Vol 4
- R. Blunden., Pryce., WTR., dan Dreyer. Peter. (1987), the Classification of Rural Areas in the European Context: An Exploration of a Typology Using Neural Network Application, **Journal of Regional Studies**, Vol 32.2
- Satterwaite, David (1997), Sustainable Cities or Cities that Contribute to Sustainable Development, **Journal of Urban Studies**, Vol 34, No 10
- Wackernagel., Mathis., dan William. (1996), **Our Ecological Footprints, Reducing Human Impact on the Earths**, New Society Publisher
- World Bank Staff (1979), **Urban Economic and Planning Models**, WBS Occasional Papers