

Title:**Strategy of Planning and Development to Urban Agricultural Settlement:
Analysis to Prospect and Modelling Land Management Approach
Towards Planned and Sustainable City**

Study Case: Cihideung Village, Parongpong Sub-District, Bandung Municipality

1. Background

Towards sustainable environment is often surrounded by so many hindrances, the more so in developing countries, including Indonesia. Noted, Indonesia is on the second position as the country with good quality of natural resources, but ironically Indonesia is just on position of 107 from 174 countries in the world on development of resources (UNDP Survey 2000). We should think as well as do more for it because there is more degradation than development of resources.

Land is one of important resources. But, many kinds of development always to be constrain for natural land as well as farming land, for example development of: commercial facilities, recreation facilities, official facilities, etc. For example in Bandung which including as a city with rapid population, as the fourth in Indonesia. Development happened through all locations of the central city as well as on peripheral area. Cihideung Village is also getting this, invasion of city development.

Cihideung Village located in the North of Bandung City, on the boundary between Bandung City and Bandung Municipality. Farming has been done by local communities since The Dutch Occupation Period. Supported by climate, various vegetables can grow properly. Meanwhile flower farming was grew later in the early of 1980. However, therefore flower farming grows more advance than horticultural farming. Noted, Cihideung Village supplies 70% of flowers market in Indonesia. Besides those, location as well as surroundings also becoming destination to spend holiday for community from Bandung City as well as from out of Bandung. But, invasion of city development always becomes the real challenge for this area. Land value which increases continuously becomes the push factor for the changing function of land if its productivity does not available.

There are several researches which have been done about Cihideung Village. The first, Sustainability of Urban Agricultural Settlement, Study Case: Cihideung Village (2002-2003). Besides, there are also other researches have been done, for example: Analyzing to the pattern of land use of farmers housing in Cihideung Village due to flower farming activity, then several Analysis to Prospect of Land Consolidation of Real Estates around of this area. The first research is done by writer. In brief from my previous research, there was known about prospect of Cihideung Agricultural Settlement, more completely can be seen on the report attached.

According to (Bryant: 1992), there are 4 functions of agricultural environment for the city, encompasses: as place, play, production and protection. Therefore in fact studying prospect horticultural farming as well as flower farming has the same importance. Based on Bryant theory, primarily, the more rapid of the city development, actually the higher needs of horticultural product. On the other word, the city should optimally provide that needs by it self.

Besides of that, peripheral areas are actually always become one of destinations for communities of central city to spend their holiday. Release their hectic by enjoying natural environment. The more so Bandung has special character of climate, where always attractive for people, even for people from other countries.

In brief, this research means as the next research for previous research, by this then will be studied how to planning Cihideung Agricultural Settlement towards sustainability. The concept which will be applied is land management approach, completely described on theory review of this proposal. There are various cases of agricultural development of other cities in other countries, for example in Japan, Korea, Europe, USA or Australia. Even the land in those countries are not enough fertile than in Indonesia. However, numerous examples should be analyzed in context farming productivity, even on very narrow of land. But, how the strategy which could be applied on location of this research is certainly require comprehensive thought, based on particular character of location.

In principle, this research will study prospect and modeling land management approach for flower farming as well as horticultural farming in Cihideung Agricultural Settlement.

2. Rational of The Study

For academic aspect, this study is aimed to enrich knowledge of housing settlement in general and agricultural housing in particular. Therefore, for practical aspect, this study is expected to be useful to empowering farmer communities, by this is expected to reach internal purpose (be more welfare as well as be more established) and external purpose (goals for sustainable city as well as sustainable city's communities). This research is also expected to be learning tool for communities and institution, towards next researches and next practices.

On part three

Condition

Completely described on my paper (sustainability). However at present developer has exceeded to the prior, no less than 3 of the other developer has built housing.

Several photograph at the back of this paper show how the conditions. Terminal parongpong, swalayan di grahpuspa, century hills (dah ada).

3. Theory Review

Sustainable Agriculture Environment:

Meaning and Importance

The World Commission on Environment and Development drew attention to the common challenges of population growth, the need for strategies for sustaining food security and the need to conserve natural resources. Agenda 21, the plan of action for implementing sustainable development elaborated further. It states:

"Major adjustments are needed in agricultural, environmental and macroeconomic policy, at both national and international levels, in developed as well as developing countries, to create the conditions for sustainable agriculture and rural development. The major objective of sustainable agriculture and rural development is to increase food production in a sustainable way and enhance food security. This

will involve education initiatives, utilization of economic incentives and the development of appropriate and new technologies, thus ensuring stable supplies of nutritionally adequate food, access to those supplies by vulnerable groups, and production for markets; employment and income generation to alleviate poverty; and natural resource management and environmental protection. (Agenda 21: 1992).

Definitions of sustainable agriculture are generally concerned with the need for agricultural practices to be economically viable, to meet human needs for food, to be environmentally positive, and to be concerned with quality of life. Since these objectives can be achieved in a number of different ways, sustainable agriculture is not linked to any particular technological practice. Nor is sustainable agriculture the exclusive domain of organic farming. Rather, sustainable agriculture is thought of in terms of its adaptability and flexibility over time to respond to the demands for food and fiber (both high and low), its demands on natural resources for production, and its ability to protect the soil and the resources. This goal requires an efficient use of technology in a manner conducive to sustainability. Finally, because agriculture is affected by changes in market and resource decisions in other sectors and regions, it is important that these changes do not provide a rationale for depleting the agricultural resource base locally. (Wilson and Tyrczniewicz. Agriculture and sustainable development: policy analysis on the Great Plains. 1995)

Land Management Approaches

There are 3 approaches of land management: Land Consolidation (LC), Land Sharing (LS) and Right Conversion Method (RCM).

3.2.1. Land Consolidation

Land Consolidation is a technique for carrying out the unified servicing and subdivision of separate landholdings for planned urban development. It is also known as urban land readjustment, land pooling, land re-plotting, and land redistribution in particular countries because it involves these processes. It is widely used in Japan, South Korea and Taiwan and in some cities in Australia and Canada. A somewhat similar technique known as plot reconstitution is used in some cities in India.

Land consolidation can be used for:

1. Consolidating separate landholdings for their unified subdivision for the planned pattern of urban land uses;
2. Achieving the timely servicing and subdivision of urban-fringe landholdings to a good standard; and for
3. Financing the cost of providing the road and public utility service networks out of the related land value increases.
4. Ensuring an adequate supply of land for new housing development.

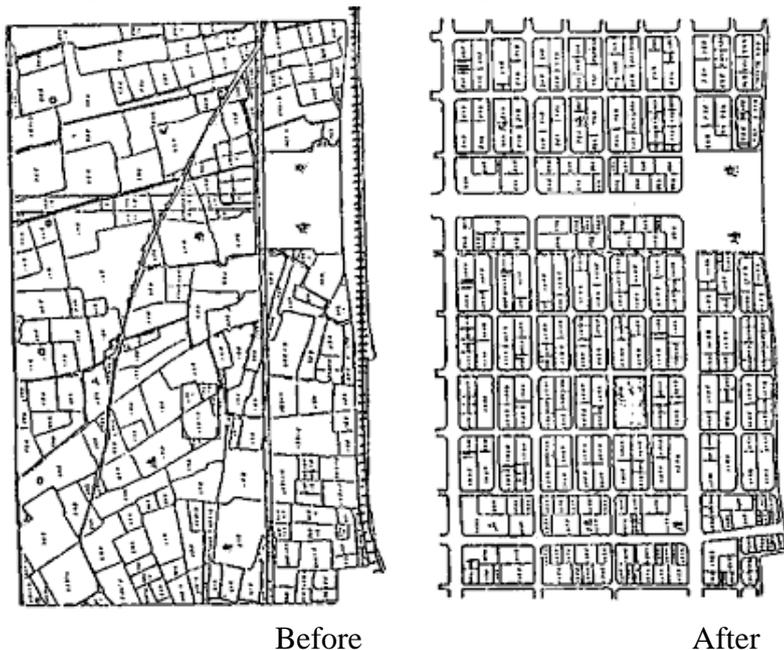
Consolidation can therefore provide real benefits, but they are not automatic benefits. Each project has to be soundly conceived, properly organized and well-managed. Most of the benefits listed can be provided by individual land consolidation projects. The final two

benefits, achieving progressive urban expansion and an adequate supply of land for new housing development, depend upon successfully programming and coordinating the various pooling projects with the other land subdivision projects in-progress into a coherent program for metropolitan expansion and land supply.

The consolidation technique can also be used to provide land for low-income housing. This could be done by allocating a proportion of the land area in each project for sale at cost or below cost to the public housing authority for the provision of low-income housing. Alternatively, the government agency managing the pooling project could be allocated a proportion of the new sites for low-income housing purposes in recognition of its role as the project manager contributing its government powers and status to the successful implementation of the project. The formula for determining the proportion of the land area or new sites to be allocated for low-income housing would have to take into account the amount of the net land value gain going to the landowners.

There are a number of factors contribute to the success of consolidation projects. It is appropriate to use the land consolidation technique when:

1. The relevant local government (or other government consolidation agency) is genuinely interested in achieving orderly urban development to a planned pattern of urban land use;
2. The ownership of the urban-fringe lands is fragmented into numerous separate holdings;
3. The urban-fringe lands are ripe for urban development with the utility network mains nearby and a market demand for serviced sites for building development;
4. A majority of the landowners in a proposed consolidation area understand and support the use of consolidation;
5. The central government has set up machinery to authorize and regulate the preparation and implementation of consolidation projects.



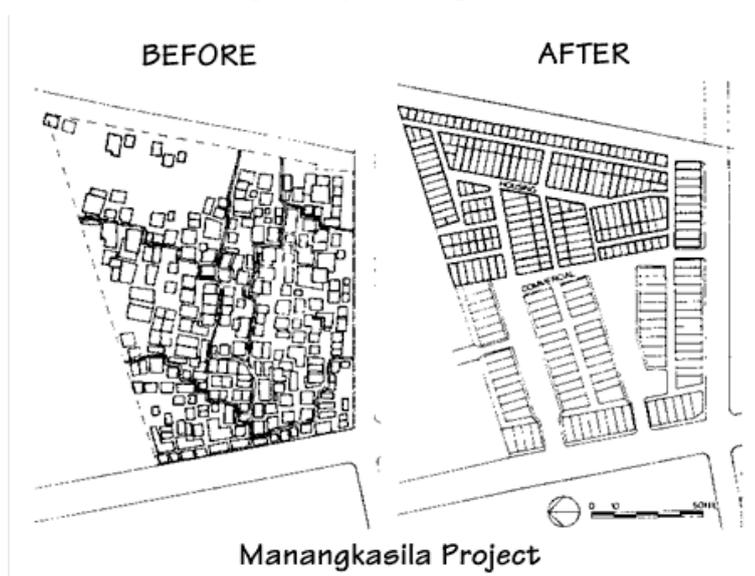
Picture 1 Example of LC project in Kaohsiung City, Taiwan

3.2.2. Land Sharing

The concept behind land sharing is that the landowner and the land occupants (squatters or tenants) reach an agreement whereby the land owner develops the economically most attractive part of the plot and the dwellers build houses on the other part with full or limited land ownership. Land-sharing offers several advantages as governments are finding it increasingly difficult to find land for sites-and-services and other public housing schemes in locations near income-generating activities, and eviction is increasingly becoming an unacceptable method to clear land for development projects. Through land-sharing both parties gain: the landowner can obtain the most desired land and the occupants can continue living in the area, with secured tenure.

There are four basic characteristics of land-sharing projects.

1. **Densification.** The occupants will be re-housed on a smaller area as the land will partly be developed by the land owner;
2. **Reconstruction.** Densification typically implies that new buildings will replace older structures. It is often necessary to build row-houses or walk-up apartments to allow higher densities;
3. **Participation.** The transformation of the plots will require a comprehensive negotiation process whereby the community will discuss the allocation of plots and the construction modalities with the landowner, often with the help of a mediator. It is necessary to include all dwellers in the project and to be able to reach agreements within the community;
4. **Cross-subsidy.** External subsidies should be avoided as much as possible. The commercial development should generate a sufficient surplus to cover a deficit resulting from the community's inability to pay for much of the cost of land, infrastructure and possibly housing.



Picture 2 Example of LS in Manangkasila, Thailand

3.2.3. Right Conversion Method

RCM is the next development of Land Sharing (LS) concept as well as its method, because they have similar principle. By LR, a plot is being moved and re-adjusted its shape, and the width is being diminished for being served for reversed land and for public facilities. If LR means as conversion land right from one plot to be another plot, on the other words, what is being converted is plot of land. Meanwhile RCM, what is being converted or being changed is land right and/ or building right. Could be said, LR is two dimensions, but RCM is “three dimensions of LR”. RCM is relevant on high density of area, therefore on this location the higher probability is vertically development.

4. Hypothesis

Within the growth of cities in Indonesia as developing countries as unplanned city, including Bandung, planned condition is actually could be reached by the time. However the requirement is researcher should be active to study therefore to find creative solutions. Creative solutions mean solutions which deliberating multi aspects. Solution couldn't be reached just by elaborating one aspect. As an example, here on this study is in context of housing settlement, we are not enough talking about numerous theories of “architectural beauty”. We couldn't avoid learning about farming, learning about land use, etc because the settlement couldn't be sustainable unless based on economic activity.

Therefore, hypothesis of this study is model of land management approach as basic of the development of sustainable agricultural settlement is can be reached. How and when 3 methods of land management approaches will be used, is described later on methodology.

5. Methodology of Research

5.1. Procedure of Research

This research will be done within 24 months (2 years), involves of three steps as follows:

1. Step 1 (8 months)

Within this step will study to prospect of modelling of land management approach in location. Within this step contain of: problem identification, literature review, providing of questioner, and collecting data.

2. Step 2 (12 months)

Step 2 contains of 2 cycles simulation of modelling of land management approach. The first model, result of simulation process therefore will be confirmed to communities by validation process. Then, the second model will be made based on validation of first model. On the other words, the second model is the correction into the first model, based on preference of communities as well as simulation of cost benefit analysis. Each cycle will be made within 6 months. Completely, it can more obviously be seen on the diagram.

3. Final Step (4 months)

Final step encompasses holding final seminar as well as completing the final report.

Diagram 2 Step of Research, see to the next page

The Diagram Steps of Research :

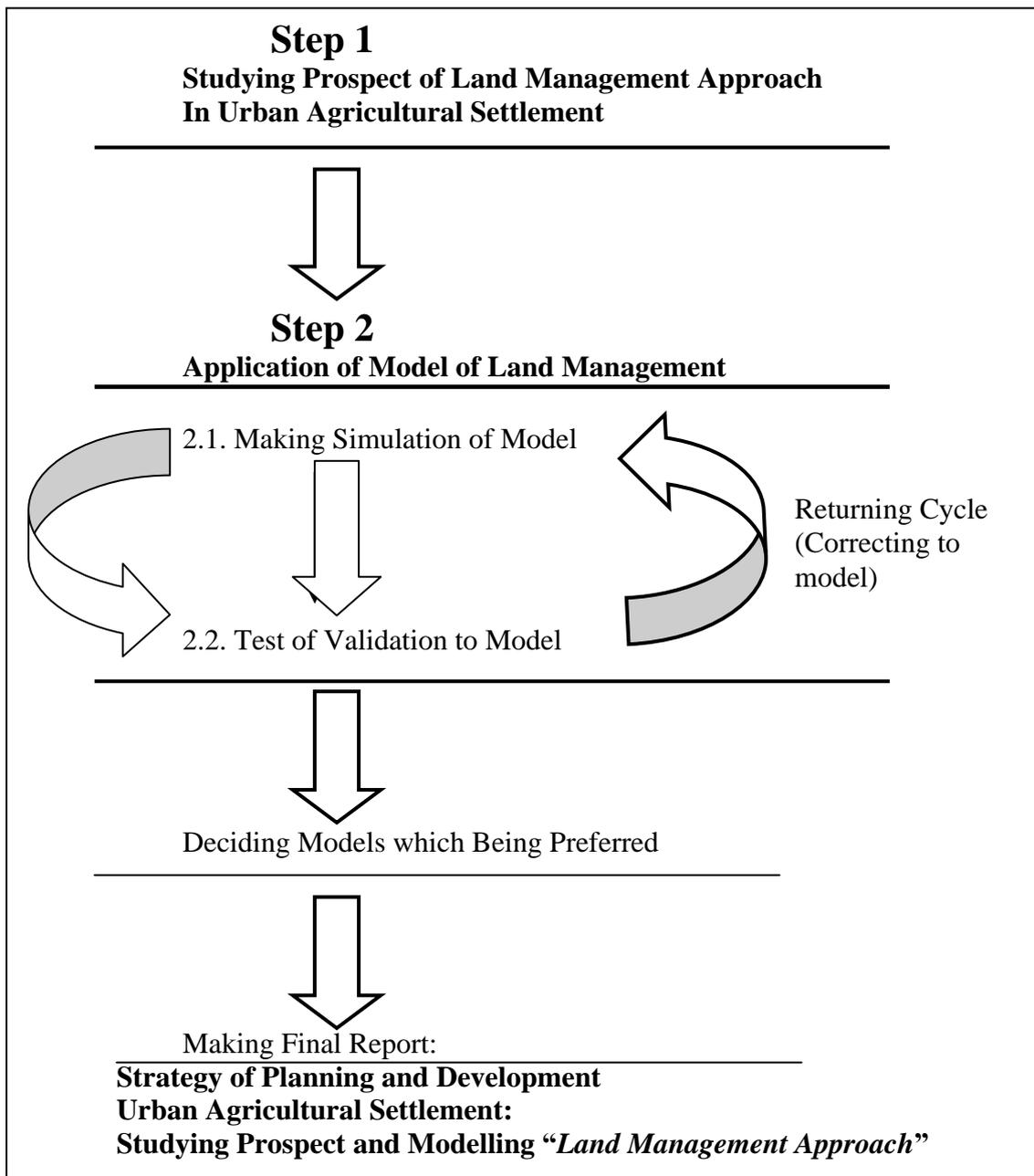


Diagram 1 Steps of Research

4. 2. Technique of Collecting Data

Focused Group Discussion (FGD)

Focused Group Discussion is a method to collecting as well as to confirming data from many informants within a forum. How to do FGD depends upon communities who have conflict of land use within location. If there is conflict among: illegal occupants, land ownerships and investors, therefore FGD will be done to bridge three subjects. Population will be decided later after completing field survey and deciding zones of research.

Goals of FGD are as follows:

- To know real history as well as land ownerships on location.
- To know conflict of land among stakeholders within 5 common years and therefore based on that, predicting how conflict can be happened later.
- To know map of land use-conflict, then by this can be analyzed as well as re-mapping the next planning of land management in location.

In-depth interview

Purpose of in-depth interview is to search data from informants which preferred purposively, but deeper than FGD. Meanwhile purpose of in-depth interview is to elaborate as well as to confirm data which being found by FGD. Population of informants takes from members of group of discussion.

Primarily, often communities do not too care to various theories including theories of architecture, city planning or environmental planning. But, they would be more care to economical prospect. Creativity and wisdom are strongly required within giving understanding to community, on survey process as well as on studying prospect. As an example: we should creative to show slide about various kinds of previous cases in other countries (before and after redevelopment). On the other words, it is not enough by giving theoretical understanding, the more so if it is given too abundant which can make them confuse even refuse to the program.

Researcher should also be facilitator to investors. Capitalists should be made wiser, have architectural insight as well as social insight. Therefore, it is expected to can find solutions which giving advantages for all (win-win solutions). In sum, various theories as well as methods have to being wrapped as wise as possible.

4. 3. Technique of Analyzing Data

Data analysis will be done by mix method to research variables, they are: quantitative analysis-method and qualitative analysis-method. How the complete method for analysis is can be found later on step 1 one of this research (Study of Prospect). There are several methods as alternatives: Analysis of Potential of Farming Land, Preference-Method, Willingness to Access, or Willingness to Pay. It is probable to use all of methods either by together or one by one. In brief it will be completely formulated after finishing step 1 of this research.

Quantitative analysis will be used within:

1. Analyzing questioner.
2. Calculating width of land, calculating prediction of cost-benefit, and calculating simulation of models of land use. Calculation will be based on approach of land management which being preferred, Land Readjustment / Land Consolidation (LR), Land Sharing (LS) and Right Conversion Method (RCM), or combining three method on one zone of location.
3. Calculating prediction of operational benefit of capital investment.

Qualitative Analysis:

When qualitative analysis will be done, are as follows:

1. Site planning design. Qualitative analysis is used besides of quantitative simulation
2. Analysis of spaces design as well as spaces among buildings
3. Analysis of qualitative data
4. Giving logical interpretation to conclusions as well as recommendations from similar kinds of study cases.

Interpretation will be made from results of quantitative as well as qualitative analysis, by analyzing relation of multi aspects. The destination is to find model of application of land management approach. Model of application of land management approach is including calculation of cost benefit, calculation of Break Event Point (BEP), and calculation of prediction of increasing of land value. Output of this research is also including basic regulation for next development within Cihideung. Related to those, it is attractive to look at various cases of agricultural settlements in around of Asia wherever applied land management, like: farming land consolidation in Japan, Korea, Thailand or Malaysia. How traditional character can be maintained, although the city has been growth fast is should be as one of considerations. How the traditional character of local communities is also should be thought on this research.

6. Purpose of Research :

Basically, there is prospect of sustainability of this settlement. How and what are problems, have been formulated on previous research about analysis of sustainability of this place. Therefore this research means as the next research from previous researches (one research has been done by the writer and others have been done by other people).

General Purpose:

General purpose of this research is to giving contribution or problem solving to the problem of challenge of sustainability of agricultural settlement in urban peripheral area. It is further to searching alternative of solution of sustainable agricultural settlement from urban space insight, architectural insight and economical consideration.

Particular Purpose:

This research has purposes as follows:

1. To find real conflicts of land use within agricultural settlement in peripheral area.
2. Doing comprehensive analysis to study problems of land use within Cihideung Agricultural Settlement contains of analysis of urban space, analysis of land value and social analysis.
3. Doing comprehensive simulation to find model of land management approaches which can be applied on location. Model is for flowers farming as well as for horticultural farming. This model of simulation is expected to giving contribution maximally to urban space, to values of architectural, to the prospect of economical function of land, to the problem of housing and settlement as well as non physic aspects, like social or cultural.
4. Doing simulation of searching model for planning this area based on model of land management approach.
5. Deciding and reporting conclusions as well as recommendations of how to planning agricultural settlement in urban peripheral area.
6. Sustainable agricultural settlements are still rare in Indonesia. By this research is expected to be the first track. Therefore by this can be the subject of a learning case of sustainable agricultural settlement particularly in Bandung and generally in Indonesia.
7. This research is certainly limited. There are limitations of both time and zone as well as scope of planning. Therefore by this research is aimed to give next recommended researches which are necessary to do later.

7. Limitations of Research

- Scope of location of this research is Cihideung Village (can be seen on the previous map), Parongpong Sub-District, Bandung Municipality. Therefore zones which will be developed are will be decided later.
- Agricultural settlement is an area of housing provided with facilities for local communities, either of working facility or service facilities.
- Planned City means as the city which has framework of planning for the future. Meanwhile sustainable city means as the city which fulfils requirements, economically, socially, natural resources, and other aspects, not only for present generation but also for future generations.

