

## Level of Sustainable Livelihood Approach at Central Agriculture City of Batu

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### ABSTRACT

This paper studied the level of sustainable livelihood approach at central agriculture city. Location of study was at Batu city as one of central agriculture city, East Java Province of Indonesia. Batu was well known either as tourism city or central agriculture city. As center agriculture city was supported by the natural and environmental condition, and public social condition mainly by functioning agricultural area. This study was observed at the areas of vegetables, flowers, foods, and plantations. The methodology consisted of interview, documentation, observation and field survey, collecting secondary data, and then analysis data. Results used as, the input to develop center agriculture city which was included the areas of vegetables, flowers, foods, and plantations. The development was based on Sustainable Livelihood Approach (SLA) and being hoped local farmers could develop their areas and get some information about how to well develop especially their agriculture center and generally their village. Beside that, it was as an input for reaching good environmental governance in long term of period.

**Keywords:** central agriculture city, level of sustainable livelihood.

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### INTRODUCTION

Batu was developed as central agriculture city, one of the reasons was some parts of human social condition had interaction with life environment. Generally, they were taking advantages from agricultural area by making income from the production of fishery, live stock, and tourism services. This city was also supported by environmental and natural condition. Batu city was not only popular as tourism city but it was also popular with the production of horticulture that was fruits, vegetables, and finery plantations [1]. Fishery and live stock were also as results of the production. In order to develop Batu city as central agriculture city, some efforts were carried out integrated and using comprehensive approach. This approach was one of many solutions in increasing human participation and prosperity [2].

Doing research on potency and local resources had an important ceiling beam, so there was an effort to create some probabilities that could increase the regional government either direct or indirect income by doing depth research in the resources potency based on the principals of wisdom and self-government. This effort could be carried out by integrating human capital ability and natural capital usage with increasing financial capital, physical capital, and social capital. Five aspects of the resources would be optimized by making attention to empowerment due to local community and it had to be supported by rural market financial towards rural institution strengthening [3].

However, developing and maintaining the security of food and energy continuously was as an important element in the mission of reaching Indonesian prosperity. According to the challenge of global climate change that was so much real, economical development of Indonesia had to put environmental problem in the fore front in strategy through the policies of adaptation and mitigation. The damage of life environment had continuously repaired through the policies included rehabilitation of forest area, increasing watershed management, and development of energy and transportation which was not polluted environment, emission gas controlling of glass house, and controlling of pollution and destruction of environment.

Development of central agriculture city could be as one of some alternative solution of village development without forgetting city area. By developing central agriculture city, it was hoped there was occurred a strong interaction between central agriculture and production area. Hence, development of central agriculture city was as well as possible to make attention to 5 aspects such as human capital, nature capital, financial capital, physical capital, and social capital or that was popular as Sustainable Livelihood Approach (SLA).

### MATERIALS AND METHODS

Location of study was selected using criterion based selection. This method was based on certain criteria so that locations and certain problems were really selected to reach an aim of complete information [4]. This research had conducted in Batu City, East Java Province of Indonesia. Map of location was as in Figure 1.

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According to the vision and mission of Batu, the city was developed in agriculture field. It was also presented in development strategy of Batu. Location of taking samples included 4 villages, named as the villages of Sumberbrantas, Sumbergondo, Sidomulyo, and Torongrejo. Level of Sustainable Livelihood Approach at Batu was presented as in Table 1 below.

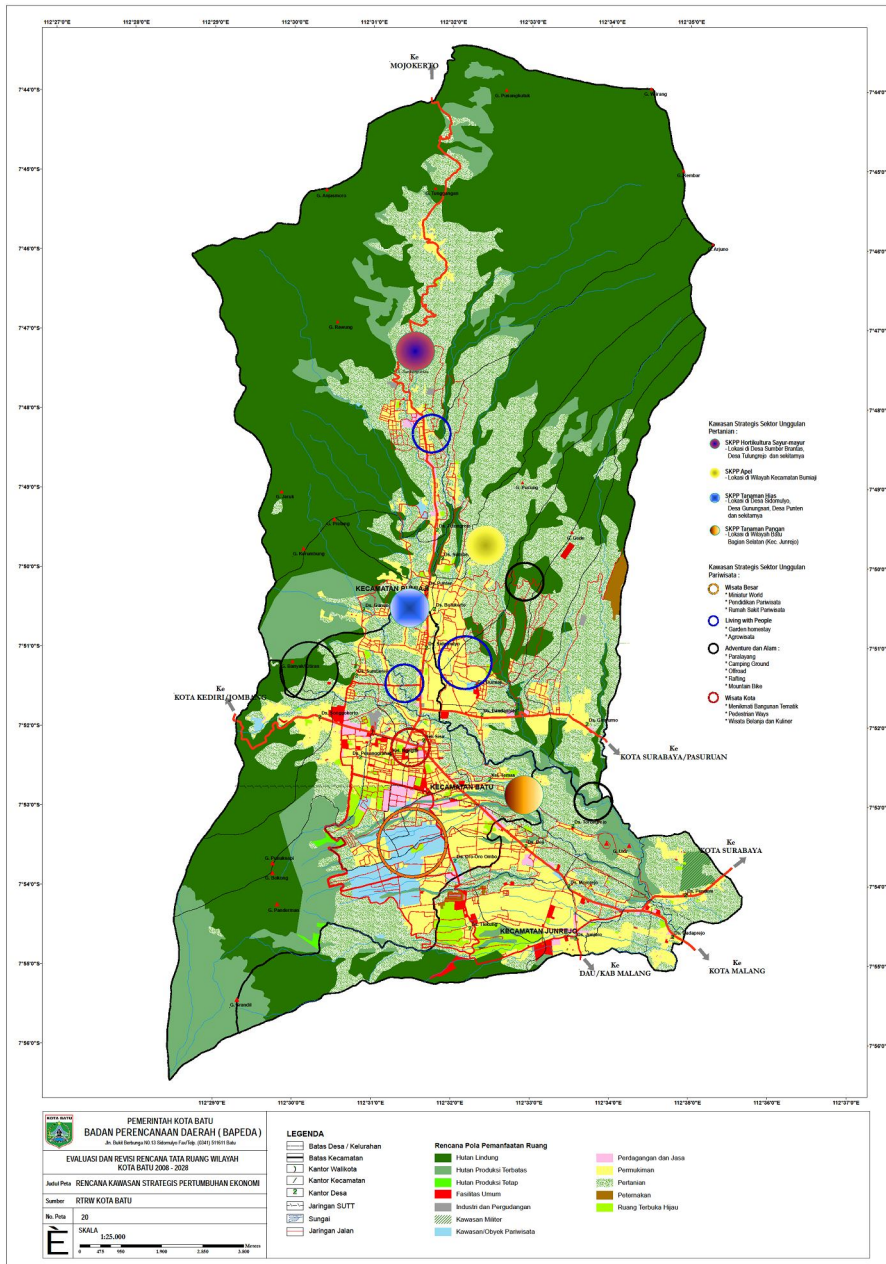


Figure 1 Map of location

Table 1 Level of Sustainable Livelihood Approach (SLA) at Batu City

| Aspect of SLA  | Vegetables area | Flowers area | Foods area | Plantations area |
|----------------|-----------------|--------------|------------|------------------|
| Human asset    | 58.7%           | 51.8%        | 63.2%      | 61.9%            |
| Natural asset  | 61.4%           | 66.9%        | 46.4%      | 39.5%            |
| Finance asset  | 50.8%           | 50.1%        | 46.5%      | 50.3%            |
| Social asset   | 48.9%           | 48.7%        | 63.7%      | 46.3%            |
| Physical asset | 60.8%           | 61.8%        | 41.8%      | 59.8%            |
| Mean           | 56.1%           | 55.9%        | 52.3%      | 51.6%            |

There were 2 kinds of data were collected in this study, those were primary and secondary data. Primary data was collected through questioner to recampondent which were as families in location of study and it was

included the indicators that supporting development of central agriculture; process and relation inter variables of central agriculture development; etc. But secondary data was collected from the related offices or institutions there. These secondary data were as information which had analysed or ready to use, and it was only used as supporting data. These secondary data was got from Area Design Institution (BAPPEDA) of Batu city, Statistical Center Institution, and District Local Government, and Village Local Government at location of study.

Technique of sample selection was a manner used to determine sample size. According to Solimun [5] sample size could be determined base on the rules as follow [1]:

1. If estimation of parameter using maximum likelihood estimation, sample size was suggested between 100 to 200.
2. There was 5 until 10 times of the number of parameters used in model and would be estimated.
3. There was 5 until 10 times of indicators of the whole variables.

This research used 25 indicators. Based on the end of the rules above, sample size in this research was  $5 \times 25 = 125$  respondents. Therefore, this research used 125 respondents (village societies) for each village and total of 4 villages were 500 respondents.

### Technique of data collection

Method used in collecting information and data was Participatory Rapid Appraisal (PRA) which was included as follow [1]:

1. Interview., Interview was due to key person as formal or informal leaders and it was intended to identify society needs.
2. Documentation. Documentation was a method to collect secondary data which was belonged to respondents, economic and social instituton, and field survey
3. Observation and field survey. This method used for convincing data and information which was got from respondents. Researcher carried out observation and field survey directly to observed object, hearing, and writing the result of field finding.
4. Collecting secondary data. This research used primary data as well as secondary data. Secondary data was collected from documents and reports related to observed problem.

## RESULTS AND DISCUSSION

Level of Sustainable Livelihood Approach was observed for 4 areas which were included the areas of vegetables, flowers, foods, and plantations. Each of area was studied for 5 aspects of human, natural, finance, social, and physical asset.

### Level of SLA at vegetables area

Level of Sustainable Livelihood Approach (SLA) at vegetables area was presented as in Figure 2 below.

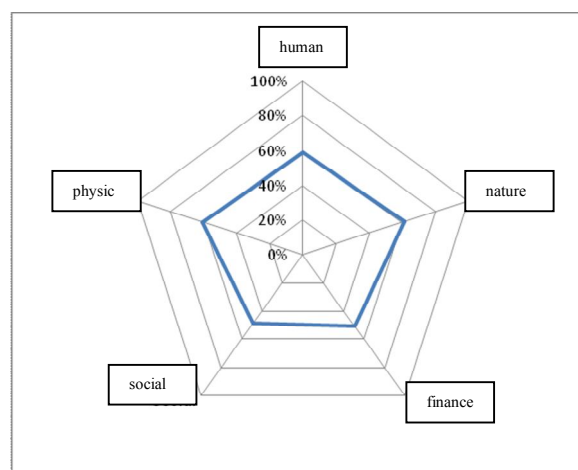


Figure 2 Level of SLA at vegetables area

Vegetables area had spesific characteristic at natural asset. It was presented as in Figure 2 above that natural asset had the highest level that was 61.4%. It meant that natural asset the conspicuous or first level in vegetables area. The second ones were the assets of physical, human, and finance. Social asset was the lowest

level. Therefore, it was concluded that high category at vegetables area were only natural and physical assets, the others like human, finance, and social assets were as in medium category.

**Level of SLA at flowers area**

Level of Sustainable Livelihood Approach (SLA) at flowers area was presented as in Figure 3 below.

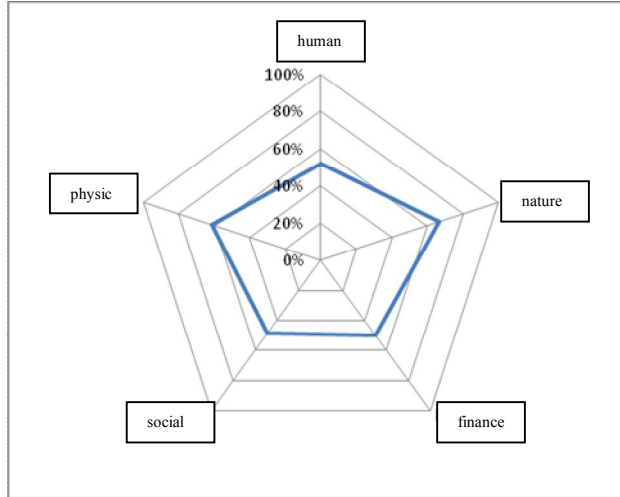


Figure3 Level of SLA at flowers area

Like vegetables area, flowers area had specific characteristic of being conspicuous at natural asset. This condition was presented as in Figure 2 above. The highest level of flowers area was natural area that was 66.9%. It meant that natural area was conspicuous at flowers area. The next levels were physical, human, and finance assets. Social asset was the lowest level. It was concluded that natural and physical assets were in high category and the others were in medium category.

**Level of SLA at foods area**

Level of Sustainable Livelihood Approach (SLA) at foods area was presented as in Figure 4 below

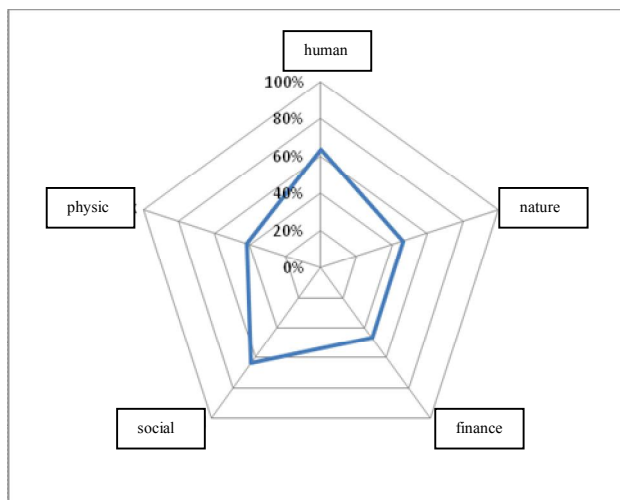


Figure4 Level of SLA at foods area

Foods area was different with the two areas before, it had specific characteristic of being conspicuous at social asset that was 63.7%. It meant that social asset was conspicuous in foods area and it was the main asset for developing central agriculture. The next levels were human, natural, and finance assets. Physical asset was the lowest level at foods area. In general, the five assets at food areas were in high category. Social and human assets were in high category, but natural, finance, and physical assets were in medium category.

### Level of SLA at plantations area

Level of Sustainable Livelihood Approach (SLA) at plantations area was presented as in Figure 5 below

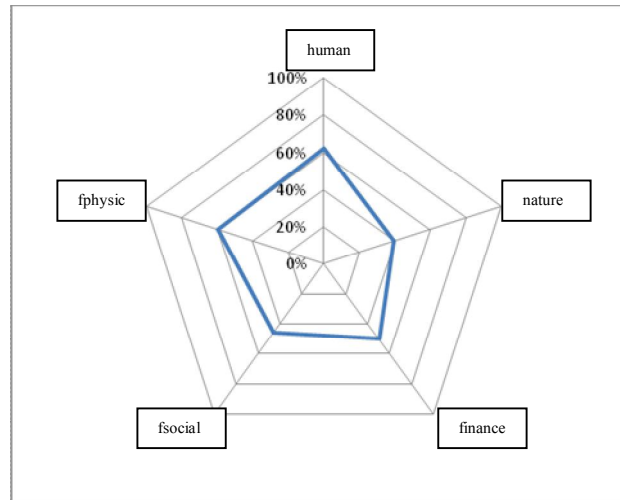


Figure5 Level of SLA at plantations area

Plantations area had specific characteristic of being conspicuous at human asset. Human asset was the high level that was 61.9% as presented as Figure 5 above. It meant that human asset was conspicuous at plantation area. The next levels were physical, finance, and social assets. Natural asset was the lowest level. At plantation area there was only natural asset in high category, but human asset was the lowest level. The others ones were in medium category those were finance, social, and physical assets.

### CONCLUSION

Level of sustainability at 4 areas of Batu city generally was as follow: vegetables area had the highest asset that was 64.9%, then flowers area that was 64.7%, and foods area that was 61.9%. In the other side, plantations area had the lowest asset that was 61.3%. However, the four areas were at high sustainability, so it was as the asset for developing central agriculture. Levels of Sustainable Livelihood Approach specifically at the four areas were as follow. Food area had the most conspicuous of natural asset. The second ones were physical, human, and finance assets. Social asset was the lowest level. Therefore, natural asset was the most dominant asset at this area. Flowers area was the same as food area. It had the most conspicuous of natural asset. The next levels were physical, human, and finance assets. The lowest level at this area was social asset. Foods area had specific category of being conspicuous at social asset. In meant that social asset was the most conspicuous at foods area and it was as the asset for developing central agriculture. The next levels were human, physical, and finance assets. The lowest level was foods area. Plantations area had specific category of being conspicuous at human asset. The next levels were physical, finance, and social assets. The lowest level was natural asset.

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