

The Effect of Asset Sustainable Livelihood to Development of Central Agriculture City

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ABSTRACT

This paper studied the influence of asset sustainable livelihood either direct or indirect due to development of 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 center agriculture city. As center agriculture city was supported by the natural and environmental condition, and public social condition mainly by functioning agricultural area. The methodology consisted of interview, documentation, observation and field survey, collecting secondary data, and then analysis data. Results used as the consideration in the effort of developing center agriculture based on livelihood sustainable approach. Otherwise, agricultural business men could develop their business wisely by using the facilities like: the input was agricultural structure; agricultural plantation was on farm, and producing agricultural results as agroindustry.

Keywords: center agriculture city, asset sustainable livelihood.

INTRODUCTION

Development interest at city modern sector had given a proof that it just increased growth in sector and location with high productivity level. Investees' growth rate and modal accumulation was only centered at the modern sector. This concept inspired the performing of growth pole economy which was hoped to develop trickle down process, so there was hinterland. In fact, there was no hinterland but massive backwash effect either from human resources side, or nature, and model [1].

Potency development and local resources was very important. Therefore the efforts to create some probabilities that could increase acceptance of regional government either directly or indirectly by developing its potency of resources. Potency development of regional resources was as the main priority which intended to increase regional income based on personal and fair principle and in the end it would increase human prosperity. This effort could be carried out by integrating human capital and natural capital with increasing financial capital and social capital so that would increase regional ability in development performance. The 5 aspects of resource would be able to be optimized by paying attention empowerment upon local community supporting by rural institution strengthening [2].

One of the reasons why Batu city was developed as center agriculture, was supported by the natural and environmental condition, otherwise the human social condition which some parts had interaction with life environment mainly by taking advantage from agricultural area such as making income from the production of live stock, fishery, and tourism services. Batu city was not only popular as tourism city but it was also well known to produce horticulture such as fruits, vegetables, and finery plantation. Otherwise it was also producing live stock and fishery. However, central agriculture city of Batu was one of many solutions in increasing human participation and prosperity. But development of Batu city was due to integrated and comprehensive approach [3].

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. 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. Typology of these villages were described as in Table 1 below.

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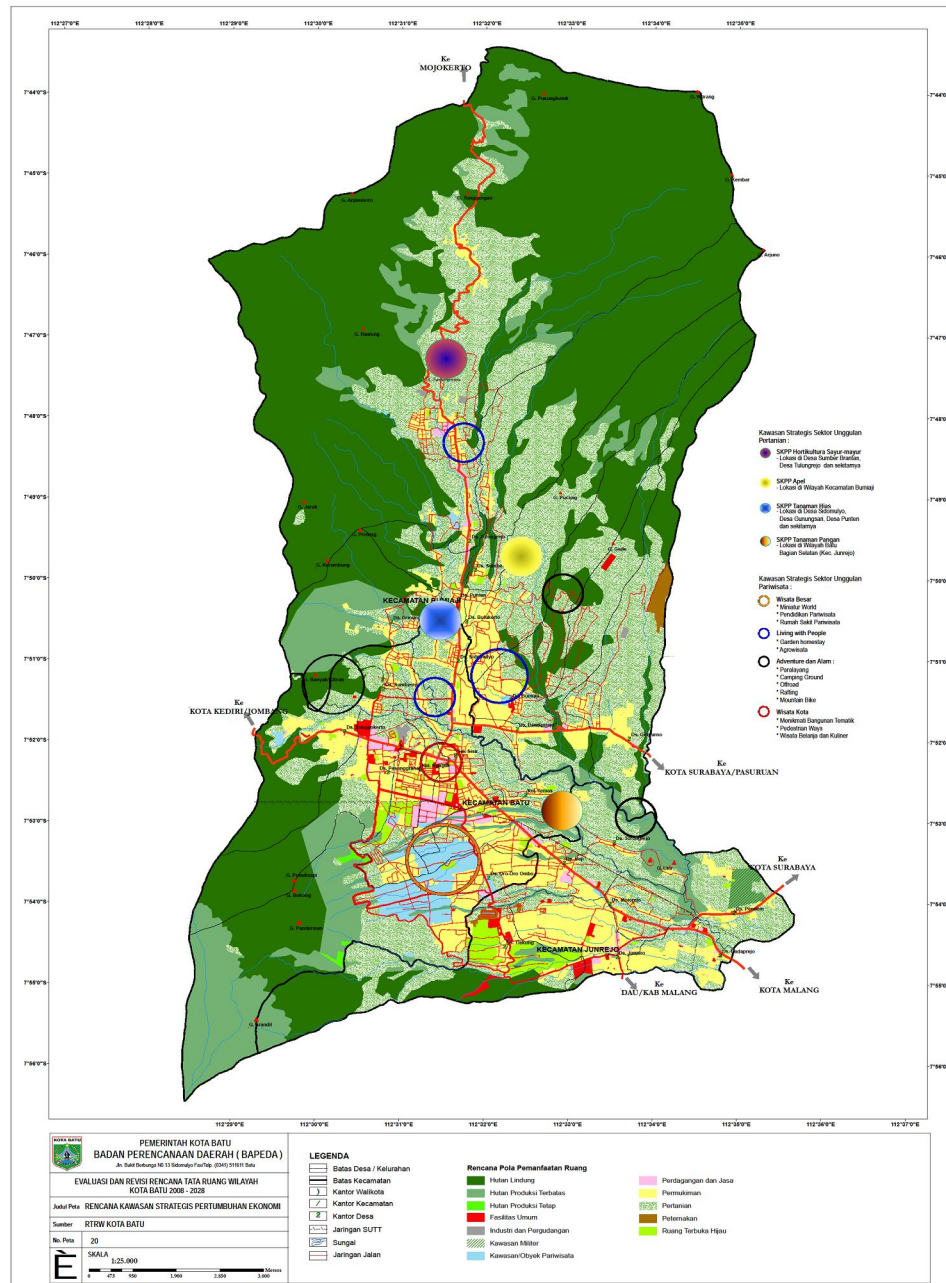


Figure 1 Map of location

Table 1 Typology of sample at location

No.	Village	Agricultural activity	Specialty of commodity
1.	Sumberbrantas Village	Sub Sector of holticulture plantation	Vegetables
2.	Sidomulyo Village	Sub Sector of finery plantation	Cutting flower – gladiol, rose, antorium, krisan
3.	Torongrejo Village	Sub sector of food plantation	Corn and rice
4.	Sumbergondo Village	Sub sector of fruit plantation	Apple, orange, and advocado

Population in this research were included society or inhabited house. Quantitative data of samples were selected using proportional random sampling, because of researched population had non homogeneous and proportional level of member or element. Qualitative data was collected from selected key person by using purposive sampling which was as technique of sample selection with certain consideration. For this purpose, there were selected 3 persons in each village who were assumed understanding about local development and potency in their locations. Number of samples were based on snow ball sampling that was as technique of

sample selection which was a little of number in beginning and then became a lot of number because received information was assumed not too complete [5].

Technique of sample selection was a manner used to determine sample size. According to Solimun [6] sample size could be determined base on the rules as follow:

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. 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

Sustainable Livelihood Approach was a method of thinking and working for evolusional development and the purpose was to make effective effort for ending the poverty. Sustainable Livelihood Approach (SLA) was supported by principals and tools which illustrated how to organize, understand, and work for handling development of issues at a complex and variety of center agriculture city and then it would be modified and self adapted to local priority and situation. The effect of asset sustainable livelihood at center agriculture of Batu city was observed directly and indirectly due to vegetables, fruits, foods, and plantations. Effect of each component was presented below.

Test of direct effect used Critical Ratio (CR) at each line of direct effect partially. If $CR > 1.96$ or $P < 0.05$, it could concluded that there was significant effect. In opposite, if $CR < 1.96$ or $P > 0.05$, it was concluded that there was not effect. Indirect effect was expressed significant if both of direct effect coefficients or the whole direct effects that performed it were significant.

Area of vegetables

Result of direct effect and indirect effect was presented at Table 1 and 2 below.

Table 1 Direct effect result of asset due to access and development of central agriculture at vegetables area

Relation inter variables	Coef of Standardize	CR	P	Note
Human asset (X1) to Access (Y1)	0.432	3.117	0.002	Significant
Natural asset (X2) to Access (Y1)	0.657	3.788	0.001	Significant
Finance asset (X3) to Access (Y1)	0.565	3.388	0.001	Significant
Social asset (X4) to Access (Y1)	0.353	2.472	0.013	Significant
Modal Fisik (X5) to Access (Y1)	0.375	3.374	0.001	Significant
Human asset (X1) to development (Y2)	0.268	1.934	0.053	Non Significant
Natural asset (X2) to development (Y2)	0.350	2.071	0.038	Significant
Finance asset (X3) to development (Y2)	0.250	1.511	0.131	Non Significant
Modal Sosial (X4) to development (Y2)	0.126	1.114	0.265	Non Significant
Physical asset(X5) to development (Y2)	0.236	2.089	0.037	Significant
Access (Y1) to development (Y2)	0.589	2.733	0.000	Significant

Table 1 showed that 3 of 11 lines were not significant, but the other 8 lines were significant. Access (Y1) was directly influenced by human asset (X1), natural asset (X2), finance asset (X3), social asset (X4), and physical aaset (X5). Development of center agriculture (Y2) was directly influenced by natural asset (X2),

physical asset (X5), and access (Y1), but it was not influenced by human asset (X1), finance asset (X3), and social asset (X4). Therefore, it was carried out indirect effect test and due to the results of direct effect.

Table 2 Indirect effect result of asset ue to access and development of central agriculture at vegetable area

Independent variable	Dependent variable	Inter variable	Coefficient	Note
Human asset (X1)	Development (Y2)	Access (Y1)	0.254	Significant
Natural asset (X2)	Development (Y2)	Access (Y1)	0.387	Significant
Finance asset (X3)	Development (Y2)	Access (Y1)	0.333	Significant
Social asset (X4)	Development (Y2)	Access (Y1)	0.208	Significant
Physical asset (X5)	Development (Y2)	Access (Y1)	0.221	Significant

Based on the data as above, development of center agriculture at vegetables area was directly influenced by natural and physical asset. It meant that if development of natural and physical asset was so good, development of center agriculture was good too. In the other words, it could be said that development and access of center agriculture was very close and related to natural and physical asset.

Field research showed that indicator of existing natural resources availability was as strongest variable gauge if it was compared with indicator of impact caused by available natural resources. Hence, natural asset at vegetable area was mainly performed because of available resources. This analysis was suitable theoretically which expressed that it had to be access to natural asset in developing center agriculture. The important aspect that necessary to be observed in related with natural resources was natural asset. It meant that there was as flowing of natural resources and available service of resources such as soil, water, forest, quality of air, protection of erosion, biological variety, etc and it was usefull in covering available income resources [7].

Area of flowers

Result of direct and indirect effect was presented as in Table 3 and 4 below.

Table 3 Direct effect result of asset due to access and development of central agriculture at flowers area

Relation inter variable	Coef of Standardize	CR	P	Note
Human asset (X1) to Access (Y1)	0.377	2.074	0.038	Significant
Natural asset (X2) to Access (Y1)	0.721	3.004	0.003	Significant
Finance asset (X3) to Access (Y1)	0.383	1.856	0.063	Non Significant
Social asset (X4) to Access (Y1)	0.217	1.373	0.170	Non Significant
Modal Fisik (X5) to Access (Y1)	0.403	2.701	0.007	Significant
Human asset (X1) to development (Y2)	0.333	1.739	0.082	Non Significant
Natural asset (X2) to development (Y2)	0.515	1.890	0.059	Non Significant
Finance asset (X3) to development (Y2)	0.135	0.794	0.427	Non Significant
Modal Sosial (X4) to development (Y2)	0.193	1.280	0.200	Non Significant
Physical asset(X5) to development (Y2)	0.255	1.620	0.105	Non Significant
Access (Y1) to development (Y2)	0.500	2.005	0.045	Significant

Table 3 showed that 6 of 11 lines were not significant, but the other 5 lines were significant. Access (Y1) was directly influenced by human asset (X1), natural asset (X2), and physical asset (X5). Development of center agriculture (Y2) was directly influenced by physical asset (X5) and access (Y1) was not influenced by human asset (X1), natural asset (X2), financial asset (X3), and social asset (X4). Based on the test of direct effect, there was 6 direct effects were not significant such as finance asset (X3) to access (Y1), social asset (X4) to access (Y1), human asset (X1) to development of center agriculture (Y2), natural asset (X2) to development of center agriculture (Y2), finance asset (X4) to development of center agriculture (Y2), and social asset (X4) to development of center agriculture (Y2). Therefore, it was carried out indirect effect test by using some results of direct effects. Coefficient of indirect effect was produced from multiplication of some direct effects test which performed it. Indirect effect was expressed significant if two of direct effect coefficients or all of them were significant.

Table 4 Indirect effect result of asset due to access and development of central agriculture at flowers area

Independent variable	Dependent variable	Inter variable	Coefficient	Note
Human asset (X1)	Development (Y2)	Access (Y1)	0.189	Significant
Natural asset (X2)	Development (Y2)	Access (Y1)	0.361	Significant
Finance asset (X3)	Development (Y2)	Access (Y1)	0.192	Non Significant
Social asset (X4)	Development (Y2)	Access (Y1)	0.109	Non Significant
Physical asset (X5)	Development (Y2)	Access (Y1)	0.202	Significant

Physical asset influenced the development of central agriculture. It showed that if there was high physical asset, would cause fast in development of central agriculture. Field research showed that flowers area had great percentage workers of farmers (farmer of flower) and in the second rank was businessman of flowers. It meant

that physical asset included well road and transportation would very influence the development of central agriculture at flowers area. Field data showed that condition of available infra structure at flowers area had been very well. Hence, effect of physical asset at flowers was better than access at flowers area.

Area of foods

Result of direct and indirect effect was presented as in Table 5 and 6 below.

Table 5 Direct effect result of asset due to access and development of central agriculture at foods area

Relation inter variable	Coef of Standardize	CR	P	Note
Human asset (X1) to Access (Y1)	0.436	2.961	0.003	Significant
Natural asset (X2) to Access (Y1)	0.296	1.974	0.048	Significant
Finance asset (X3) to Access (Y1)	0.063	0.620	0.535	Non Significant
Social asset (X4) to Access (Y1)	0.697	4.066	0.001	Significant
Modal Fisik (X5) to Access (Y1)	0.370	3.279	0.001	Significant
Human asset (X1) to development (Y2)	0.332	2.406	0.016	Significant
Natural asset (X2) to development (Y2)	0.067	0.719	0.472	Non Significant
Finance asset (X3) to development (Y2)	0.043	0.536	0.592	Non Significant
Modal Sosial (X4) to development (Y2)	0.482	2.723	0.006	Significant
Physical asset(X5) to development (Y2)	0.248	2.375	0.018	Significant
Access (Y1) to development (Y2)	0.533	2.993	0.003	Significant

Table 5 showed that 3 of 11 lines were not significant, but the others 8 lines were significant. Access (Y1) was directly influenced by human asset (X1), natural asset (X2), social asset (X4), and physical asset (X5). Development of central agriculture (Y2) was directly influenced by human asset (X1), social asset (X4), physical asset (X5), and access (Y1), but it was not influenced by natural asset (X2) and Finance asset (X3). Based on direct effect test, 3 direct effects were not significant such as finance asset (X3) to access (Y1), natural asset (X2) to development of central agriculture (Y2), and finance asset (X4) to development of central agriculture (Y2). Therefore, it was carried out indirect effect test by using some results of direct effects. Coefficient of indirect effect was produced from multiplication of some direct effects test which performed it. Indirect effect was expressed significant if two of direct effect coefficients or all of them were significant.

Table 6 Indirect effect result of asset due to access and development of central agriculture at foods area

Independent variable	Dependent variable	Inter variable	Coefficient	Note
Human asset (X1)	Development (Y2)	Access (Y1)	0.232	Significant
Natural asset (X2)	Development (Y2)	Access (Y1)	0.158	Significant
Finance asset (X3)	Development (Y2)	Access (Y1)	0.034	Non Significant
Social asset (X4)	Development (Y2)	Access (Y1)	0.372	Significant
Physical asset (X5)	Development (Y2)	Access (Y1)	0.197	Significant

At food areas, development of central agriculture was directly influenced by human asset, social asset, and physical asset. Social asset was the most dominant among three assets above. It meant that more social asset would produce more development of central agriculture. This factor could be real if social asset was supported by strong and well access simultaneously. Human asset was also important because they were as implementers and had a strong relation to social asset. But human asset could be effective by access.

Area of plantation

Result of direct and indirect effect was presented as in Table 7 and 8 below.

Table 7 Direct effect result of asset due to access and development of central agriculture at plantation area

Relation inter variable	Coef of Standardize	CR	P	Note
Human asset (X1) to Access (Y1)	0.696	3.667	0.000	Significant
Natural asset (X2) to Access (Y1)	0.351	2.831	0.005	Significant
Finance asset (X3) to Access (Y1)	0.437	2.708	0.007	Significant
Social asset (X4) to Access (Y1)	0.401	2.222	0.026	Significant
Modal Fisik (X5) to Access (Y1)	0.385	3.160	0.002	Significant
Human asset (X1) to development (Y2)	0.317	1.459	0.145	Non Significant
Natural asset (X2) to development (Y2)	0.084	0.737	0.461	Non Significant
Finance asset (X3) to development (Y2)	-0.018	-0.113	0.910	Non Significant
Modal Sosial (X4) to development (Y2)	-0.028	-0.192	0.847	Non Significant
Physical asset(X5) to development (Y2)	0.156	1.227	0.227	Non Significant
Access (Y1) to development (Y2)	0.805	2.776	0.006	Significant

Table 7 showed that 5 of 11 lines were not significant, but the others 6 lines were significant. Access (Y1) was directly influenced by human asset (X1), natural asset (X2), finance asset (X3), social asset (X4), and physical asset (X5). Development of central agriculture (Y2) was directly influenced by access (Y1) but it was not directly influenced by human asset (X1), natural asset (X2), finance asset (X3), social asset (X4), and physical asset (X5). Based on direct effect test, there were 5 of 11 direct effects were not significant such as human asset (X1) to access (Y1), natural asset (X2) to development of central agriculture (Y2) and finance asset (X3) to development of central agriculture (Y2), social asset (X4) to development of central agriculture (Y2) and physical asset to development of central agriculture (Y2). Therefore, it was carried out indirect effect test by using some results of direct effects. Coefficient of indirect effect was produced from multiplication of some direct effects test which performed it. Indirect effect was expressed significant if two of direct effect coefficients or all of them were significant.

Table 8 Indirect effect result of asset due to access and development of central agriculture at plantation area

Independent variable	Dependent variable	Inter variable	Coefficient	Note
Human asset (X1)	Development (Y2)	Access (Y1)	0.560	Significant
Natural asset (X2)	Development (Y2)	Access (Y1)	0.283	Significant
Finance asset (X3)	Development (Y2)	Access (Y1)	0.352	Significant
Social asset (X4)	Development (Y2)	Access (Y1)	0.323	Significant
Physical asset (X5)	Development (Y2)	Access (Y1)	0.310	Significant

At plantation area, human access, physical access, finance access, social access, and physical access absolutely needed access in giving direct effect to development of central agriculture. It meant that if these assets as above were increasing in accessibility so development of central agriculture would increase too. Human asset belonged to plantation area was low. It could be showed that most of them were from graduate of elementary school. But because of the ease in education and wealthy, and capability in cultivating plantation area of apple, it would increase human asset at high plantation area.

CONCLUSION

There was direct and indirect effect between asset (included human, natural, finance, physical, and social) to access and development of Batu city. It meant that accessibility of central agriculture of Batu city was high as well as the five assets. Effects to each item of area were as follows. At vegetables area, it showed that human, finance, and social asset were indirectly influenced to central agriculture. The three assets would be influenced through access first (through inter variable). The other two assets such as natural and physical asset were directly influenced to the central agriculture. It meant that it had to make attention to human, finance, and social asset for developing vegetables area. For the two other assets, they were only increasing the accessibility. At flowers area, there were only two assets which were indirectly influenced to the central agriculture such as human and natural asset. But the three other assets as social, finance and physical assets were directly influenced to the central agriculture. If Batu city would develop flowers area, it had to make attention to human and natural assets. The other three assets were only to survive the accessibility. At food areas, there was only natural asset which had indirectly influenced. But the other 4 assets were directly influenced to the central agriculture. Therefore, for accelerating the development of center agriculture at foods area, it was necessary to make more attentions to natural asset. At plantation area, the five assets in sustainable livelihood approach were indirectly influenced the development of central agriculture. The five assets were human, natural, finance, social, and physical assets. Hence, development central agriculture of Batu city for plantation area had to improve the five assets.

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