Spatial Analysis in Poverty Review Framework of East Java Province

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ABSTRACT—*Nowadays, classic and fundamental problems faced by developing countries in general such as Indonesia are high-degree of poverty both at national and regional levels. According to Central Bureau of Statistics (BPS) data in 2013, it was recorded that number of poor people in Indonesia has reached 28.55 million people (11.47%) where 17.06% of them live in East Java Province or equal to 4.87 million people or about 12, 7% from total population in East Java Province. A high percentage of poor people in districts or cities will easily found in the areas dominated by agriculture sector-based activities. This high percentage of poor people was related to level of human development in district/city. Therefore, this study aimed to analyze the spatial patterns of poverty, human development and social and economic activities, and its relation by using principle component analysis (PCA) followed by multiple regression. From analysis result of the spatial pattern and linkage analysis there were five (5) patterns which addressed poverty policy directives that can be used as a basic overview to addressed poverty in East Java Province.*

Keywords— spatial analysis, poverty, economic development, human and social development, Principle Component Analysis (PCA)

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1. INTRODUCTION

Indonesia was known as the emerald of the equator with its islands spread over its territory, diversity in languages, ethnic groups and cultures, also known to contain third highest biodiversity after Brazil and Africa. Natural wealth in this country, either on the surface or below, was highly abundant therefore this country has become the target of more developed countries. Its human resources unify by "Bhinneka Tunggal Ika" was a superb potential as a capital to become strong and fully-known country by other nations in the world. However, those were only slogan and hopes, since management and utilization of those potential were only felt and enjoy by a group of people when it was suppose to be felt and enjoy by all of its people.

As stated in Constitution of 1945, article 33 section 3 that Earth, water and natural wealth contained within it was ruled by the nation and utilized for people's prosperity. If this mandate was completely done by the government, prosperity of Indonesian people would be ensured and inter-islands gaps and poverty would be highly declining and it was possible that none of Indonesian people was having poor status.

As described in data from Central Bureau of Statistic, numbers of poor in Indonesia during 2011-2013 has been declining. In 2012, about 37,87 million poor people or 18.41% has become 28.55 million poor people or 11.47% in 2013. During this period, the difference was 9,32 million poor people or 6,94%. From 19 provinces in Indonesia, East Java province has its own record during its poverty alleviation program. This was shown in 2010 where poverty rate of 15,26% has decline into 14,23 in the following year. In 2012, poverty rate was 13,4% or decreasing by 0,83% compared to previous year and in September 2012, poverty rate has further decreasing into 13,08% or having 1,15% differences compared to 2011. This declining tendency indicates that there were increasing prosperity in East Java.

Decreasing poor percentage was due to consequence of East Java governor with its apparatus in their poverty alleviation program in East Java province. Responsibility and consequences was mandated in vision and mission of East Java covered in Rencana Pembangunan Jangka Menengah Daerah (RPJMD – Regional Medium-Term Development Plan) 2009-2014 of East Java province. One of the mandate was to create honor, protection and to met the basic rights for poor community in a gradual and progressive manner so that they could live their life with value, and to reduce the number of poor women and men. Government of East Java province has formulated the agenda to be implemented until

2014 which is "Create Employment, Improve Effectiveness in **Poverty Alleviation**, Empowering People Economy, Particularly for Economic Disadvantageous Group and Improve People's Social Prosperity".

Form of this mandate was showed by government of East Java province through implementation of numerous cluster-based poverty alleviation program by involving various sectors and components, either in regional government and community, thus it was expected that the program would be more on target (efficient and effective). There were 3 clusters involved in this matter, those were **First Cluster**, consist of those in aid program and family-based social protection program, with objective to meet basic right, to reduce poor family's expenditure, and to improve poor family's quality of life with target such as very poor household (RTSM), poor household (RTM) and almost poor household (RTHM). Its main program was Jalan Lain menuju Kesejahteraan Rakyat (***Jalin Kesra***) program. This cluster was identical with social aid program; **Second Cluster**, consist of community empowerment-based poverty alleviation program through *PNPM Mandiri* with the objective to developed potential and strengthened poor community's capacity to be involved in national development, to improve revenue and people's standard of life through efforts and cooperation to attain empowerment and independency with the target of poor communities in subdistrict areas. This cluster was identical with community empowerment; **Third Cluster**, was a poverty alleviation program based on small medium enterprise empowerment (SME) with the objective to discovered and provide capital access and economy strengthening for small medium enterprise businessmen with Kredit Usaha Rakyat (KUR) program. Example of this cluster was Peningkatan Keberdayaan Masyarakat (PPKM) program which was a revitalization of Gerdu-Taskin program that was in action since 2002 until 2009 and has given benefit for poor household. This cluster was identical with SME empowerment.

Aside from those poverty alleviation programs mentioned above, poverty alleviation was a complex problems and in need of appropriate handling for all of its development sectors. Therefore, development should be emphasized in certain sector's growth that could give contribution toward high economy development and also not neglecting its human/social development sectors (IPM). There's no meaning if we attain high economy development but has a low capability/ability/willingness/passion and low resources on the people/community/social who works on it. It would surely bring no positive impact in poverty alleviation and it might just create another poverty issues. Thus, economy development and human development improvement (IPM) should be balanced and linear. As we know, development basically consist of several aspects, such as economy growth, evenly-distributed income and sustainability related with its resources and environment conservation. Development success would need cooperation and support from all stakeholders and demanding contribution of each sectors.

It was explained above that economy growth/development should be in line with human development (IPM). It can be described that human development strategy in Human Development Index (IPM – Indeks Pembangunan Manusia) which was expected to act as a weapon to addressed poverty, was still not enough to explain poverty pattern of a region, as shown in East Java province case. Relationship pattern between different human development level and its poverty level among its districts/cities has showed that to alleviate poverty, it needs an appropriate strategy with each of its areas' pattern.

Therefore, discovering development characteristic in each district/city was a neccessity to manage and developed poverty alleviation strategy in a region. Regional characteristic mentioned above was also related with its neighbouring inter-region interaction pattern. Neighbouring regions would affect each other, and for certain matter with high interaction, neighbouring regions has similarity or sameness in its activities pattern.

By viewing its regional characteristic, geographical information system (GIS) has the ability and reliability in analyze spatial/regional areas. Initiated from this, applying GIS in poverty review can be done. As explained by Barus and Wiradisatra (2000), GIS application has been used in lots of field, such as land use management of agriculture, plantation and forestry; in business and service planning, such as market area analysis and prospect of new business establishment; and in logistic and transportation, for subject/object (food and beverages) movement related with infrastructure and its routes.

Considering the importance of regional-based development without administrative constraint of a region (district/city) in an effort to alleviate poverty, there should be an in-depth review or research study concerning poverty and regional development with spatial analysis approach. Such a review or research was meant to provide description concerning what and how does poverty emerged or addressed by regional development policies that could be analyzed using *Geographic Information System* (GIS).

2. RESEARCH METHOD

This study used quantitative approach in the form of in-depth review over data processed statistically (SPSS 20) thus composing data or value that could explain relatedness of a numerical with other numerical. Afterward, result of statistical processes would be subjected to spatial analysis (arcgis 10) thus composing new information and spatial data, whereas this new spatial data would give direction or policy in development related with poverty alleviation.

Study site was East Java province located in between 111° 0 '- 114^04' Eastern Latitude 12^0 SL - 8^048' SL, with average temperature of 18^0-35^0 Celsius, average rainfall 2.100 mm and its geological structure was dominated by Alluvium sediment rocks. Administratively, East Java province has 229 islands with 47.130,16 km^2 land area and 110.764,28 km^2 waters area which consist of 38 districts/cities with 662 subdistrics, and 8.503 villages.

Data obtained using documentation method which was secondary data collection from documents in all related institution such as Central Bureau of Statistics of Provincial/Districts/Cities level, Bappeda of Provincial/Districts/Cities level, Agencies and related institution of Provincial/Districts/Cities level and other institution.

Data analysis in this study consists of 3 phase described as follows:

1) **Spatial data development phase**

This was a phase that builds spatial data from tabular data. Spatial data built in this phase was poverty pattern in East Java province, spatial data of economy development in East Java province and spatial data of human/social development in East Java province. These spatial data was built based on group into 4 criterion which were high, medium, low and very low by using distance approximity clustering (*Euclidean distance*).

As suggested by Saefulhakim, 2006, *cluster analysis* was mainly used to clustering objects or a process to summarise several objects into less number and labeling it as clusters. In cluster analysis there was no independent or dependent variables. Basic for grouping in cluster analysis was similarity or dissimilarity distance. Objects within a cluster has relative similarity compared to other objects in other cluster. Cluster analysis was also known as *classification analysis*. The expected result of cluster analysis was the existence of contrast (high) difference of a cluster with another, thus it clearly showed that there was characteristic differences between the formed clusters and that it has high similarity between members of a cluster, or in other word, in a cluster there should be same objects.

2) **Multivariate analysis phase**

This was a relatedness analysis phase between poverty pattern as dependent variable Y with economy and human development act as independent variable X. From this phase, we would obtain which variables have positive and negative impact toward poverty. Thus it could be used as the basic or direction for poverty alleviation policy.

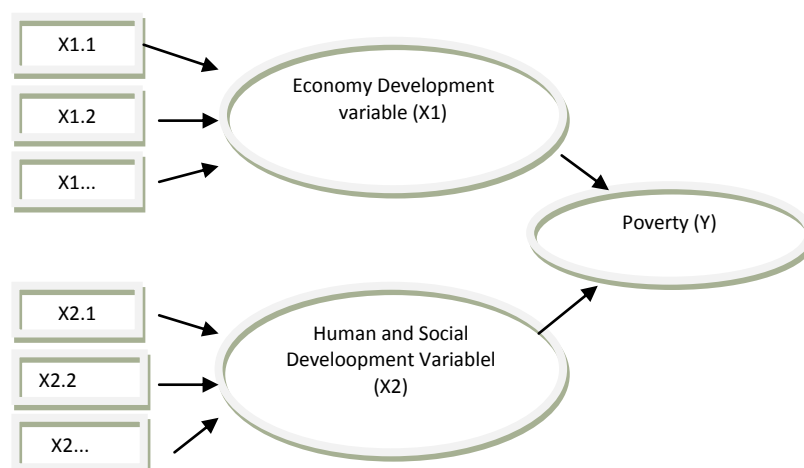This study flow chart was using Principle Component Analysis (PCA) as described below:

Figure 1. Analysis flowchart using Principle Component Analysis (PCA)

Several variables analyzed in this study can be classified into 3 variable components, such are:

1. Economy development variable was all variable that could be calculated/measured concerning growth/development and economy development such as: amount and production yield of paddy, other food production, plantation yield production, production and population of animal husbandry, production of freshwater and marine fisheries, number and type of industry, cooperatives, SME, commerce and hotel, number of land use, number of market (traditional/modern), business centre, and other supporting variables.
2. Human/social development variable (IPM) such as number of hospital and community health center, number of religious services, number of public/private schools, number of university, number of students, number of teachers and teaching staff, number of physician and medical/nurse staff, number of citizen who receive aid for poor, number of open/green space, number of public facilities and services, and other supporting variables.
3. Poverty variable which include number of poor citizen, distribution of poor citizen (district/city/subdistrict), number of citizen (population), population density, and other supporting variables.

3) Spatial modeling

This was a technique used to see whether poverty in an area was caused by neighbouring' poverty or related to it and influenced by principal component variables of economy and human development's indicator in this area and its neighbouring area. If distance between both areas highly affects interaction between areas, we might see what parameters in other area that could affect poverty declining rate in this area and how much was those influences

3. RESULTS AND DISCUSSION

1. *Poverty Pattern in East Java Province*

Poverty is a latent issue for developing nation such as Indonesia. Various efforts has been done by the government to reduce or alleviate poverty. However, until now poverty in rural areas within province were still high. It was as if poverty alleviation was never occured or in other word, as if poverty alleviation program was in a stand still. East Java's position in national poverty level for Java island with its dense population was next after Central Java and the 3rd was West Java (Central Bureau of Statistic, 2013).

East Java has more opportunity in poverty alleviation. Particularly if it was seen from poverty declining rate in East Java, either in numbers or percentage it was larger than West and Central Java. During 2007-2014 period, amount of poor citizen in East Java has decline about 345 thousand people per year or declined about 1,11 percentage per year. This condition has placed East Java, from first position with most poor citizens in Indonesia into second position. Its position was taken by Central Java in 2014 as shown in Figure 5.6. Thus contribution of poverty in East Java that once reach 19,98 percent in 2007 has decline into 16,93 percent in 2014, toward national poverty. However, this 12,42% of poverty in East Java was still far from the expected target for 2015, if national target was used as MDGS reference for East Java it was 10,30% (Java Central Bureau of Statistics, 2014).

Aside from poverty reduction accomplished by East Java province, this study provide poverty pattern description for East Java that could be analyzed using principal characteristic configuration approach from several variables include poor people, population density, school participation, labor, residential status of poor families and women as breadwinner. All of those variables would be analyzed in spatial form to create a topological/dispersion map and distribution that could describe and represent poverty pattern in East Java province.

From poverty pattern characteristic topology analysis, we obtaine five (5) poverty pattern below:

- Poverty Pattern I: category with high number of poor individual, high school participation, high employment participation, high level of residential ownership and low population density was in Quadrant IV. Districts/cities using this pattern were Kediri, Malang, Lumajang, Jember, Banyuwangi, Bondowoso, Probolinggo, Pasuruan, Sidoarjo, Jombang, Nganjuk, Ngawi, Bojonegoro, Tuban, Lamongan, Gresik, Bangkalan, Sampang, Pamekasan and Sumenep.
- Poverty Pattern II: category with low number of poor individual, low school participation, low employment participation, low residential ownership and with low population density. It was located in Quadrant III. Districts/cities using this pattern were Kediri city, Blitar city, Malang city, Probolinggo city, Pasuruan city and Mojokerto city.

- Poverty Pattern III: category with medium number of poor individual, medium school participation, medium employment participation, medium residential ownership and high population density. It was located in Quadrant II. Districts/cities using this pattern were Mojokerto, Surabaya city.
- Poverty Pattern IV: category with medium number of poor individual, medium school participation, medium employment participation, medium residential ownership and low population density. It was located in Quadrant I. Districts/cities using this pattern were Pacitan, Ponorogo, Trenggalek, Tulungagung, Blitar, Situbondo, Madiun, Magetan, Madiun city and Batu city.
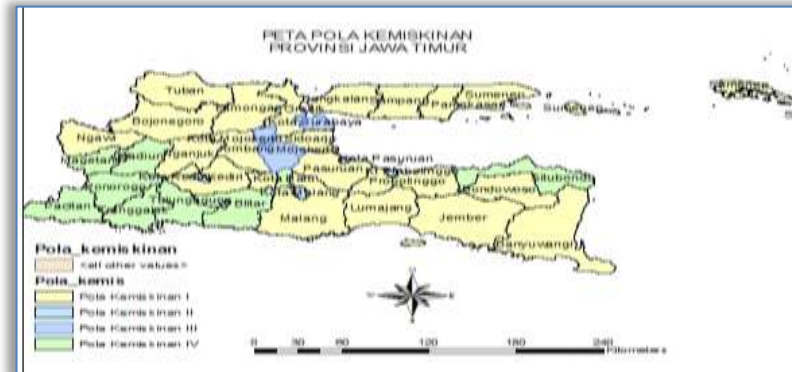

Figure 2. Map of Poverty Pattern in East Java Province 2013

2. Relationship of Economy Development Variable and Human and Social Development Variable with Poverty in East Java Province

To explain relationship of economy development variable and human and social development variable with poverty in East Java province, we use *principle component analysis* (PCA). Result of PCA could be used to conduct multiple regression analysis with the objective to discover which variables have affects toward poverty. *Principal Component Analysis* (PCA) was used to group determining variables from several main factors to become less than its original amount, but it would still showed most variance/information from the original data.

This analysis was meant to grouped several variables with similarity into one factor, thus it was possible to gain less main factors from several attributes which affects a variable component. According to Saefulhakim (2006), there were two basic aims from PCA, those were:

1. Variable Orthogonalization: transforming data structure with correlated variables into new data structure with new variables (also called as Principal Component or Factor) without any correlation.
2. Variable Simplification: amount of new variables was less than its original variables, but total information content (total diversity) relatively similar/same.

In this study, 12 variables were used and consist of 5 economy development variables (PDRB, agriculture sector, animal husbandry sector, fisheries sector, and number of cooperatives). Human and social development variable was characterized by 3 main characteristic which are human development index, health index and education index. Four (4) variables characterize poverty those were number of poor citizen, population density, residential ownership (status), school participation and labor.

From *principal component analysis* (PCA) results, there were three (3) main characteristic which represent relationship between 12 variables with poverty in East Java province, with coefficient value equal or more than 0,5. Those three (3) main characteristic were component 1 formed by amount of poor people with 0,90, labor participation 0,83, school participation 0,878, house ownership 0,832, agricultural sector 0,727 and number of cooperative 0,927 and called as principal component 1 or PCA1. Component 2 was formed by human development index (IPM) 0,655, health index 0,961 and education index 0,784 which was called principal component 2 or PCA2. Component 3 was formed by population density 0,776, and animal husbandry sector 0,71 which called as principal component 3 or PCA3. While PDRB variable was ignored since it did not give description concerning significant relationship with poverty of a region as can be seen in figure 2 and table 1 below.

Figure 3. Constituent variables of 3 Principal Component (PCA)

Table 1. Rotated Component Matrix[a]

	Component		
	1	2	3
Number of poor	.900	-.347	-.185
Employment Participation	.830	-.454	-.283
School Participation	.878	-.410	
Population Density	-.230	.193	.776
House Ownership	.832	-.372	-.342
Agriculture production	.727		-.555
An.Husbandry production	.542	.248	.710
Fisheries production	.391	-.116	
Human development index	-.272	.655	.252
Health Index		.961	
Education Index	-.297	.784	.365
Number of Cooperatives	.927	.111	.185

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
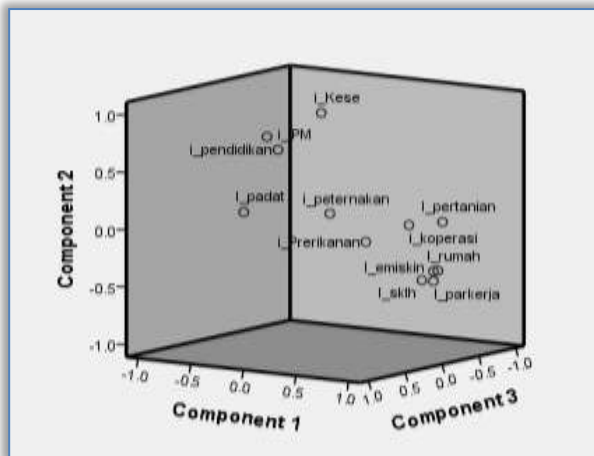a.   Rotation converged in 5 iterations.

Regression analysis to view and describe how was the effect of characteristic variables toward poverty in East Java province. In this multiple regression analysis, dependent variable (Y) was poor household index while its independent variable (X) was value from PCA analysis results which were X1 used PC1, X2 used PC2 and X3 used PC3.

Multiple regression can be made into adequate equation if it met several characteristic such as having normal distribution, F calculated > F table value, Sig value (ρ) < 0.005. Those criterions can be seen in ANOVA table. Result of multiple regression analysis in this study was using equation below:

$$Y = 0{,}026 + 1.582PC1 – 1.338PC2 – 1.100PC3$$

From ANOVA test we obtained F calculated > F table with 212.965 > 2.87, while Sig value (ρ) 0.00 < 0.05 and its independent variable was normally distributed as seen in Figure 5.26. ANOVA table from multiple regression analysis result might be viewed below.

Table 2. ANOVA[a] Table

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.009	3	.003	212.965	.000[b]
Residual	.000	34	.000		
Total	.009	37			

a. Dependent Variable: number of poor household
b. Predictors: (Constant), REGR factor score   3 for analysis 2, REGR factor score   2 for analysis 2, REGR factor score   2 for analysis 1
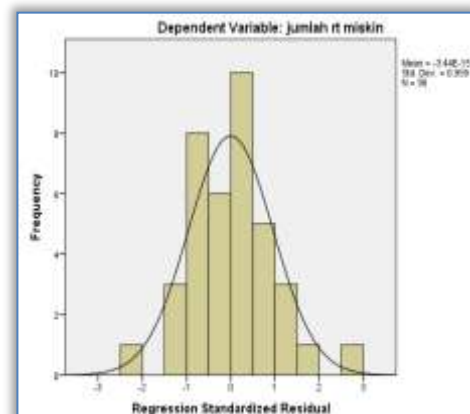

Figure 4. Normal Distribution Chart of Independent Variable to Number of Poor Household

In the meantime, to found out how much the effect of independent variable or principal components (PC1, PC2 and PC3) toward poverty (poor household), it could be seen from R square (R^2) value. R^2 value of this study was 0.949. It means that component PC1, PC2 and PC3 has very large effect with 94.9% while the remaining 3.1% was affected by other factor or principal component. This might be seen in Table 3 below.

Table 3. R value of Regression from Principal Component

Mo del	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.974ᵃ	.948	.945	.0037296	.948	212.965	3	34	.000	.914

a. Predictors: (Constant), REGR factor score 3 for analysis 2, REGR factor score 2 for analysis 2, REGR factor score 2 for analysis 1

b. Dependent Variable: jumlah rt miskin

From regression analysis result above, it was known that PC2 and PC3 component has positive impact in reducing number of poor household, while PC1 component has linear effect with number of poor household. Positive relationship of PC2 and PC3 with its constituent variables of PC2 covers Human Development Index, Health Index, and Education Index. PC3 component was composed from population density variable and animal husbandry sector. Those variables above were based on regression analysis result that showed positive relationship with decreasing number of poor household in East Java province.

To reduce the number of poor household, we need to improve the supporting variable of PC2 (human development index, education index and health index) and PC3 (population density and animal husbandry sector), for example, if PC2 and PC3 increase 100% it would reduce number of poor household about 2.41 or 241.2% while if PC1 increase 100% it means number of poor household would increase about 1.61 or 161%. Therefore, poverty alleviation acceleration in East Java province can be done by increasing the value of PC2 constituent variables (education index, health index, human development index) and PC3 constituent variables (animal husbandry sector, increasing agricultural sector and decreasing population density) also by reducing PC1 value by decreasing number of poor individual with improvement in variables such as in agricultural sector, employment participation, students participation, and number of cooperatives.

It was commonly known that in poor household individuals has constraint to fulfill their basic rights of living a standard and appropriate life. This constraints can be seen from its residential ownership status which was still renting it from other or owning it themselves but the house was below standard condition, education related with this household was low, with uncertain employment and uncertain income per month, calories need was not met or inadequate, basically work as farmer, laborer, fishermen, or scavenger and there were other characteristic that could be used to describe a poor household.

From the above characteristic, it can be explained that to accelerate poverty alleviation, poverty alleviation program should start with characteristic improvement from the poor household itself. Later on, it could be followed by improving the empowerment program and equality program also giving opportunity to fulfill his life within the society. Poor people would usually have low self esteem in their daily life due to its poor status.

As suggested by Kartasasmita (1996), the cause of poverty was several factors such as: *First*, low education level which causing limited self development. *Second*, low health level include low health and nutrition would cause low physical endurance, low thinking capacity and low initiative. Thus their productivity would also lower, either in quantity or quality. The impact of this was weaker *bargaining position* in almost all economy activities. *Third*, there was limited employment. As long as there was employment or business opportunity, the hope to break poverty circle still exists. *Fourth*, there was isolated condition. In isolated or remote condition, people would less capable in spinning their economy wheel.

In the meantime, Badan Perencanaan dan Pembangunan Nasional (Bappenas – National Planning and Development Agency) 2004 define poverty as a condition where someone or a group of people, either men or women, cannot fulfill their basic rights to maintain and developed a standard way of living. This basic rights consist of rights assumed by poor people as their rights to enjoy standard way of living and rights acknowledged in constitution regulation. Those commonly known basic rights were include meeting the need for food, health, education, employment, settlement, clean water, land use, natural resources and environment, safety from violence treatment or threat and right to participate in social political life, either for women or men.

From both definition above it can be concluded in this study that poverty occurs due to lots of factor, its principal or main factor came from internal part of poor people themselves and then followed by external factor from environment or government policies for poor people so that there was no access discrimination in all sectors of life. Poverty alleviation

program from this study result was improvement of poor household characteristic represented by poor people themselves, employment participation, education/school participation, house ownership and population density grouped in Principal Component PC1. Following this, to reduce the number of poor household we could improve human development program by improving human development index, health index and education index variables which contained in Principal Component PC2. Improvement in agricultural sector, fisheries sector, animal husbandry sector and number of cooperatives as efforts to direct government policies to take side with poor household in accelerating poverty alleviation was considered as external factor

3.   *Direction of Poverty Alleviation Policies of East Java Province*

In effort to alleviate poverty, East Java province has done all efforts existed in poverty alleviation program. However, as it can be seen poverty alleviation program seems to be on a stand still and not yet accomplish maximum results. Therefore, poverty alleviation program should be improved in all development sectors, started by updating poverty data. As commonly known, classic issue in poverty alleviation was incomplete data regarding poor household and sometimes the data was so old fashioned thus there was people still categorized as poor although they were not. Generally, poverty alleviation programs in East Java province accelerate poor citizen reduction by adopting MDGS main issue.

To implement main issue of MDGS, East Java province has composed main strategy of development in RPJMD 2009-2014, as described below:

1. People-centered sustainable development, that prioritizing people's participation in planning, implementing and monitoring development programs related with their own intention.
2. Taking side with poor citizen.
3. Gender mainstreaming
4. Balance in even distribution of development and economy growth, particularly through development of agroindustry and agribusiness.

Poverty alleviation in East Java province wouldn't be optimum without engaging and coordinating with districts/cities as the spearhead in implementing poverty alleviation program. Therefore, good poverty alleviation program would be inter-regional or inter-administrative poverty program, thus poverty alleviation in district/cities would be in line with poverty alleviation program in East Java province.

This study was meant to provide input or policies which can be used in addressing poverty issue in East Java province, therefore acceleration to accomplish objectives of poverty alleviation would be more integrated and in harmony with poverty alleviation program in districts/cities. From processed results of poverty pattern, human and social development pattern and economy development pattern using spatial analysis with overlay for those three (3) patterns and also strengthened by cluster analysis, we obtain several directions for acceleration of poverty alleviation, such as:

1. Encouraging improvement in agricultural sector, animal husbandry sector and fisheries sector since there is relationship that high level of poor people was located in low economy development pattern and low human development pattern.
2. Encouraging improvement in employment for poor people and improving number of cooperatives, since based on poverty pattern, amount of poor people was located in low economy development and low number of cooperatives. It also appears in human development pattern with low education index and low health index.
3. Encouraging improvement in PDRB of districts/cities where high and low poverty pattern was also lies in economy development whereas PDRB of districts/cities was low.
4. Encouraging improvement in health, education and better human development since there were still low poor individuals with low human development value.
5. Maintain and improve economy development of PDRB, agricultural sector, fisheries sector, animal husbandry sector and increase number of cooperatives where there was still low poverty pattern.

It can be described in detail as shown in Table 4 and Figure 5 below.

Table 4. Topology of Districts/Cities Distribution
Based on Policies Direction of Poverty Alleviation

Kod	Nama Kabupaten	Arahan Kebijakan Pemerintah					
		Topologi	1	2	3	4	5
01	PACITAN	2	V		V		
02	PONOROGO	4			V		V
03	TRENGGALEK	2	V		V		
04	TULUNGAGUNG	4			V		V
05	BLITAR	4			V		V
06	KEDIRI	4			V		V
07	MALANG	3	V		V		
08	LUMAJANG	3	V		V	V	
09	JEMBER	3	V		V	V	
10	BANYUWANGI	4			V		V
11	BONDOWOSO	3	V		V	V	
12	SITUBONDO	4			V		V
13	PROBOLINGGO	3	V		V		
14	PASURUAN	3	V		V	V	
15	SIDOARJO	4			V		V
16	MOJOKERTO	4			V		V
17	JOMBANG	3	V		V		
18	NGANJUK	4			V		V
19	MADIUN	4			V		V
20	MAGETAN	4			V		V
21	NGAWI	3	V		V	V	
22	BOJONEGORO	3	V		V		
23	TUBAN	3	V		V		
24	LAMONGAN	4			V		V
25	GRESIK	4			V		V
26	BANGKALAN	3	V		V	V	
27	SAMPANG	3	V		V	V	
28	PAMEKASAN	3	V		V	V	
29	SUMENEP	3	V		V	V	
71	KOTA KEDIRI	3	V	V	V		
72	KOTA BLITAR	3	V	V	V		
73	KOTA MALANG	3	V	V	V		
74	KOTA PROBOLINGGO	3		V	V		V
75	KOTA PASURUAN	3	V	V	V		
76	KOTA MOJOKERTO	3	V	V	-		
77	KOTA MADIUN	3		V	V		V
78	KOTA SURABAYA	1		V	-		V
79	KOTA BATU			V	V		

Figure 5. Map of Policies' Direction in Acceleration of Poverty Alleviation in East Java Province

4. CONCLUSION

From result of discussion above and based on problematic formulation, it can be concluded that:

1. Poverty pattern in East Java province was 1) Pattern 1 with medium number of poor individual, and low population density consist of district of Pacitan, Ponorogo, Trenggalek, Tulungagung, Blitar, Situbondo, Madiun, Magetan, Madiun city, and Batu city; 2) Pattern 2 with medium number of poor individual and high population density consist of Mojokerto districts and Surabaya city; 3) Pattern 3 with low number of poor individual and low population density consist of Kediri city, Blitar city, Malang city, Probolinggo city, Pasuruan city, Mojokerto city and 4) Pattern 4 with high number of poor individual and low population density consist of Kediri, Malang, Lumajang, Jember, Banyuwangi, Bondowoso, Probolinggo, Pasuruan, Sidoarjo, Jombang, Nganjuk, Ngawi, Bojonegoro, Tuban, Lamongan, Gresik, Bangkalan, Sampang, Pamekasan and Sumenep.
2. Relationship between economy development variable also human and social development variable toward poverty in East Java using PCA analysis has obtain 3 principal component which were PC1 characterize by 6 variables include number of poor people, employment participation, school participation, house ownership, agricultural sector, and number of cooperative; PC2 was characterize by 3 variables which were human development index, health index, and education index while PC3 was characterize by 3 variables such as population density, animal husbandry sector, and fisheries sector. From multiple regression analysis result, we obtain PC1 component was having linear effect toward poverty,while PC2 and PC3 components has negative effect with minus sign (-).
3. Direction of policies concluded in this study as input for government were: 1) Improvement in fisheries sector, animal husbandry sector and agricultural sector which consist of district of Kediri, Malang, Lumajang, Jember, Bondowoso, Probolinggo, Pasuruan, Jombang, Nganjuk, Ngawi, Bojonegoro, Tuban, Malang city, Blitar city, Mojokerto city, Kediri city, Pasuruan city, Pacitan, Probolinggo city, Trenggalek, Bangkalan, Pamekasan and Sampang; 2) Improvement in employment and school participation which consist of Kediri city, Blitar city, Malang city, Probolinggo city, Pasuruan city, Mojokerto city, Madiun city, Pacitan, Trenggalek, Situbondo, Magetan, and Surabaya; 3) Improvement in PDRB of 36 districts/cities while for Surabaya city and Mojokerto city it was already high; 4) Improvement in health index, education index and human development index which covers Sampang, Lumajang, Pasuruan, Jember, Bondowoso, Ngawi, Bangkalan, Pamekasan and Sumenep.

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5. SUGGESTIONS

Based on discussion result and conclusions, efforts that could be suggested to formulate policies regarding poverty alleviation program would be:

1. Government would encourage balance development inter-regional thus accelleration of poverty alleviation was accomplished and integrated.
2. To implement program and planning regarding poverty alleviation government should involve districts/cities so that poverty alleviation acceleration was accomplished.
3. Government should give more opportunity in proposition or design of poverty alleviation from the bottom of districts/cities (*bottom-up*)
4. Government should optimize the role of Badan Koordinasi Wilayah (Bakorwil – Regional Coordination Agency) as the spearhead of synchronization and coordination with districts/cities.
5. In an effort to improve work opportunity and improve lower class economy, government should able to facilitate agriculture business development and industry established by small businessmen and poor household, through business activities training, capital and encouraging productive cooperatives to increase poor household income growth (*pro poor growth*).

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