LAND VALUE DETERMINATION TO CREATE LAND VALUE ZONE AROUND THE DISASTER-POTENTIAL AREA

(Case Study : Sidoarjo district, Indonesia)

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On 29th of May 2006 it happens the disaster of overflowing and blast of hot mud inside which cover area of **621,9 ha, 11,76 km around and there are 12 villages were covered by hot mud.**

The disaster is an overflowing and blast of hot mud at district of Sidoarjo since May 29th, 2006 that has been suffusing the land for more than 621.9 ha and 11.76 km in perimeter. Centroid coordinate of the mud blast is at 112,71° E and 7,52° S inside the area of petroleum oil drilling which covering 5 villages at SubD Porong (Glagaharum, Renokenongo, Mindi, Siring, Jatirejo), 4 villages at SubD Tanggulangin (Ketapang, Kalitengah, Gempolsari, Kedungbendo) and 3 villages at SubD Jabon (Kedungcangkring, Pejarakan, Besuki).

The disaster of overflowing and blast of hot mud gave the negatif influence to the situation surrounding and also influenced land value over the land market reaction.

Background

- *Land and building Tax* (PBB) is an objective tax that its assessment based on tax object condition.
- To assess the PBB, there is so we called NJOP (Sale Value of Tax object) that should determine and classified first through valuation procedure according to Tax office regulation No.*533/PJ/2000*.
- In the regulation mentioned that before the valuation process there is an activity called *Land Value Zone* (ZNT) concept.
- *Land Value Zone (ZNT)* is an imaginer zone consists of classes of land parcel that have similar value.

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Background

- The land valuation use the sales comparison method, that in Regulation of KEP-533 is not clearly stated what variable should be used in the method to predict land value and how much the adjustment level for every variable that analyzed.
- The variable and adjustment level that selected to analyze land value in one location should be based on the reality of data and actual fact in location, because of it there is no standard variable and adjustment level for all kind location.
- Practically, the forming of ZNT concept only based on appraiser intuition and prediction.
- This kind of method can make the land value results tends to be subjective matter, and also for near disaster-potential area such as Sidoarjo Mud Disaster

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Background

- the problem is become more complex because to predict this disaster area land value, where it should be considered the disaster factor. Because of this disaster, the land value pattern has changed so the sales comparison approaches method that commonly used no longer accurate.
- The valuation at near disaster-potential area should be revised quickly so the Land and Building Tax assessment still on time and valid.
- This process will also affect other activities of Valuation such as Sale Value of Tax Object (NJOP) as a base of calculation for the land transfer tax and compensation.

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Method

- The purpose of the research is to obtain more objective land classification at near disaster-potential area through spatial analysis, Analytical Hierarchy Process (AHP) method, and multiple regression statistic analysis.
- Land class is determined by calculate each parcel land value, then classified based on class range rule, and the next step is forming of LVZ (ZNT) map.
- Land value modeling is conducted to obtain land value of each parcel by using dependent variable (Y), which is land market price and independent variables (X), which is parcel quality level.
- Independent variable (X) is a synthesis of weight value of each factor that influence land value and parcel quality level score.

Method

- The factors that influence land value in this research is determined from literature review, which are: distance of parcel to CBD, distance to main road, distance to disaster location, distance to infrastructure relocation, and land use type.
- Determination of weight score of each factors and determination of land value score on land use criteria is using the AHP method.
- Determination of land parcel in all criteria of distance is using spatial analysis.
- Land value modeling using multiple regression method obtaining four land value formulation model, that will be selected the best one to predict land value of every parcel.
- To determine the land value for PBB, the land value prediction result is classified and use dissolve operation to form the LVZ map.

Results

- The result of the study is a LVZ map for near disaster-potential area (Sub-district Porong, Jabon and Tanggulangin, within District Sidoarjo) that can be used as a comparison of land value for PBB resulted by procedure according to Regulation KEP-533/PJ/2000.
- From this land value determination then can be calculated the implicaton for Land & Building Taxation (PBB) assessment

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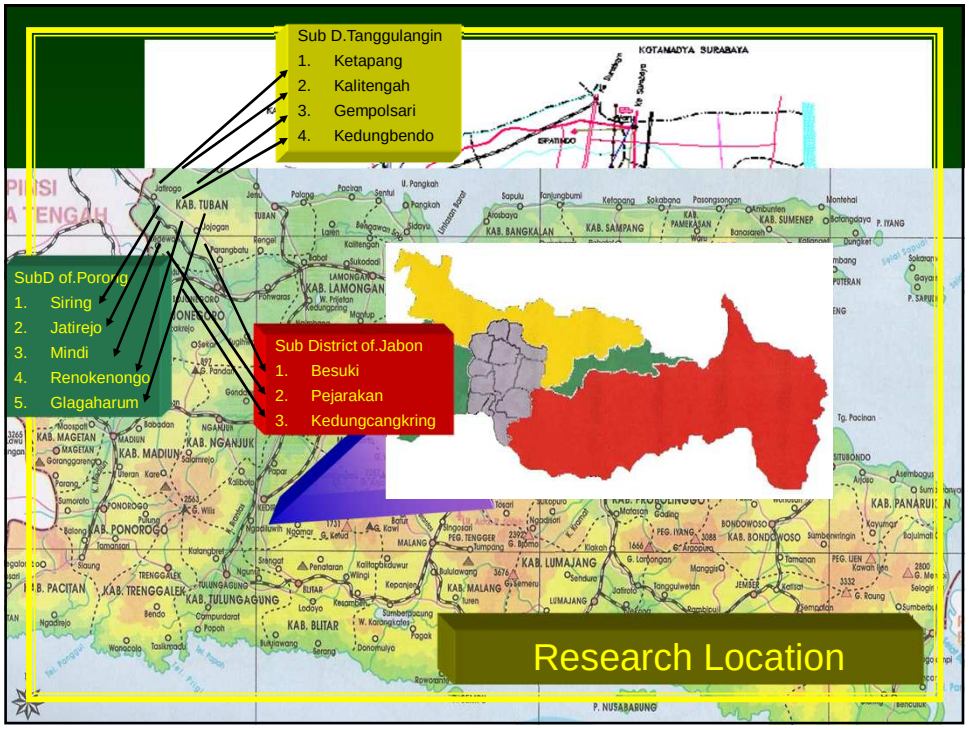
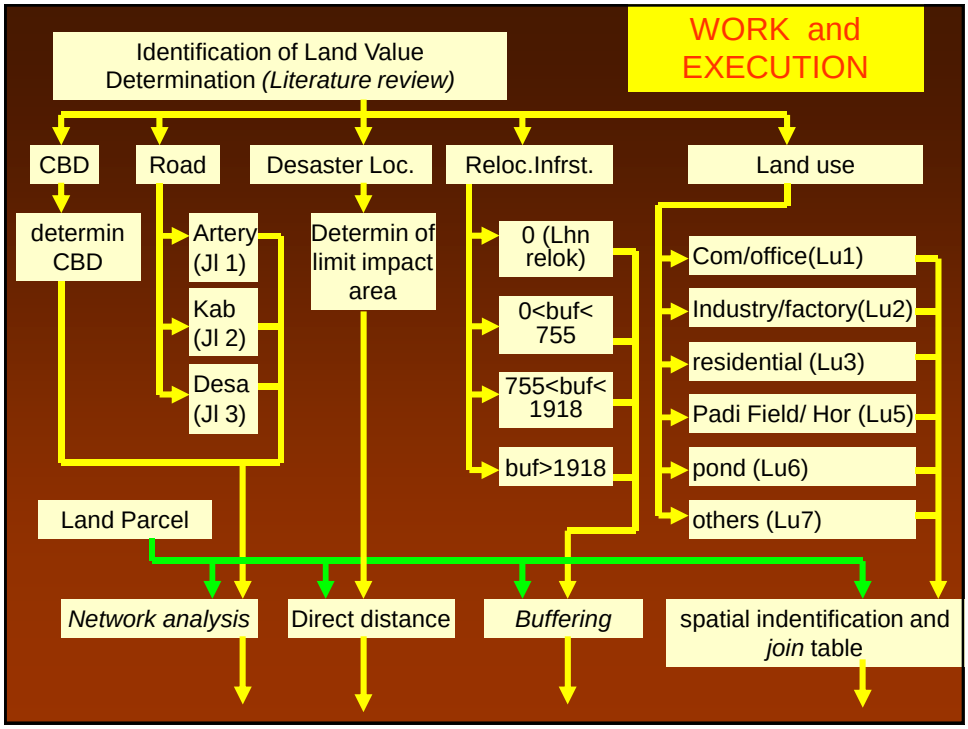
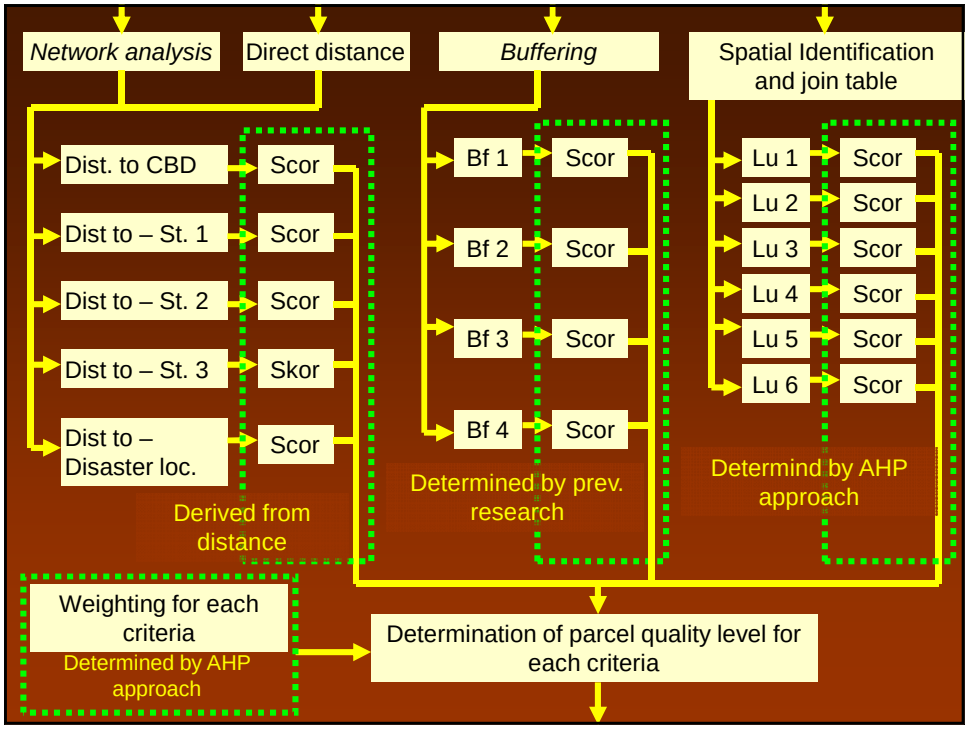
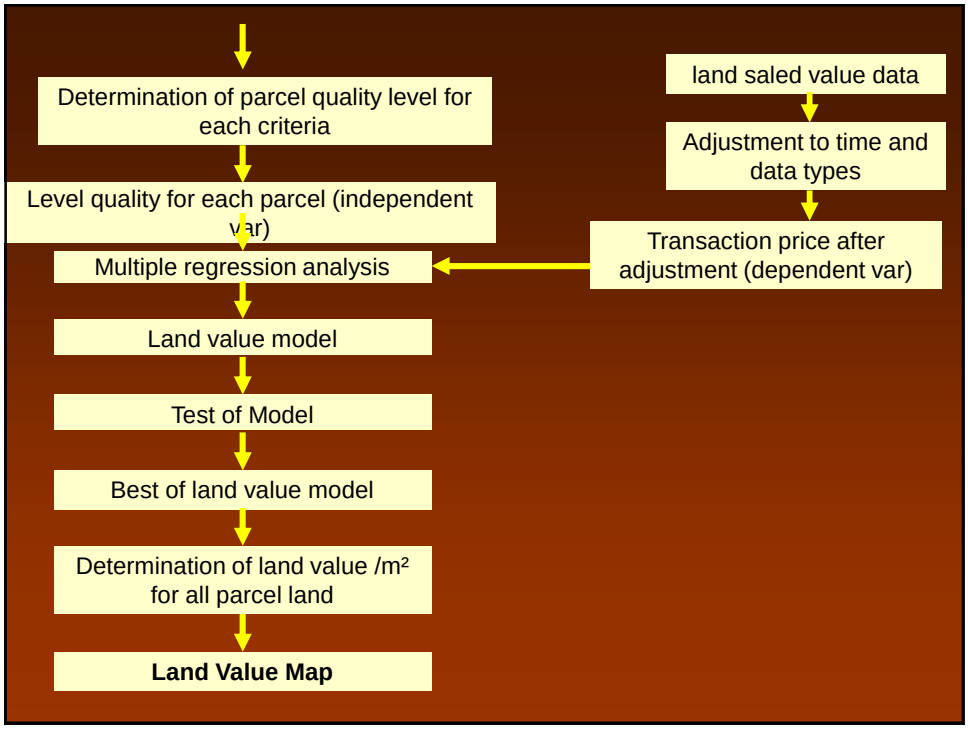
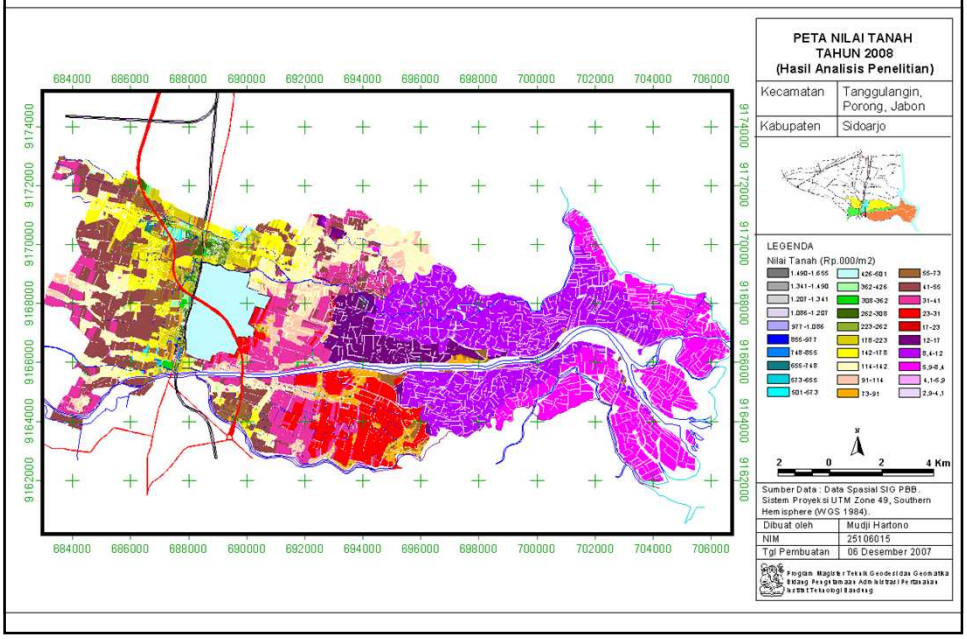



WORK and EXECUTION
Identification of Land Value Determination (Literature review)
CBD
Road
Desaster Loc.
Reloc.Infrst.
Land use
determin CBD
Artery (Jl 1)
Kab (Jl 2)
Desa (Jl 3)
Determin of limit impact area
0 (Lhn relok)
0<buf< 755
755<buf< 1918
buf>1918
Com/office(Lu1)
Industry/factory(Lu2)
residential (Lu3)
Padi Field/ Hor (Lu5)
pond (Lu6)
others (Lu7)
Land Parcel
Network analysis
Direct distance
Buffering
spatial indentification and join table

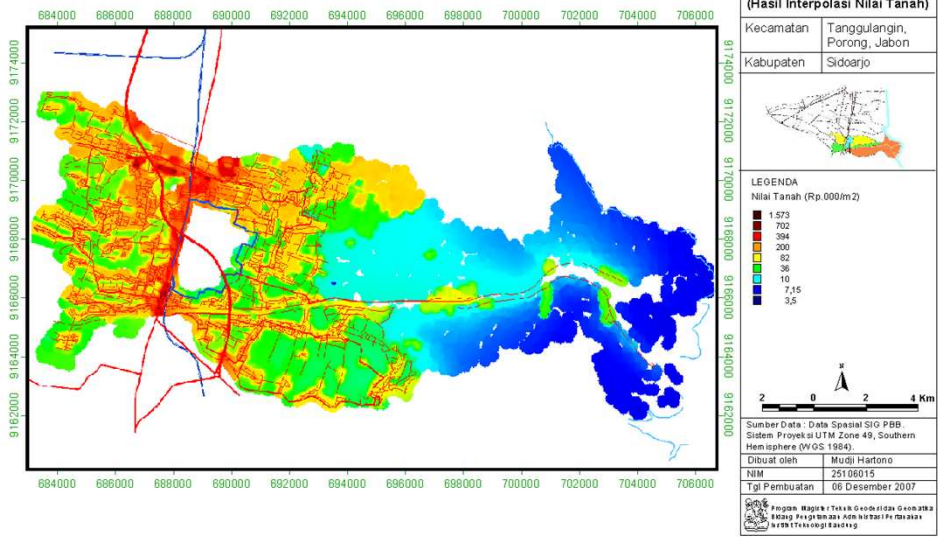

Network analysis
Direct distance
Buffering
Spatial Identification and join table
Dist. to CBD
Dist to – St. 1
Dist to – St. 2
Dist to – St. 3
Dist to – Disaster loc.
Scor
Skor
Derived from distance
Bf 1
Bf 2
Bf 3
Bf 4
Determined by prev. research
Lu 1
Lu 2
Lu 3
Lu 4
Lu 5
Lu 6
Determind by AHP approach
Weighting for each criteria
Determined by AHP approach
Determination of parcel quality level for each criteria



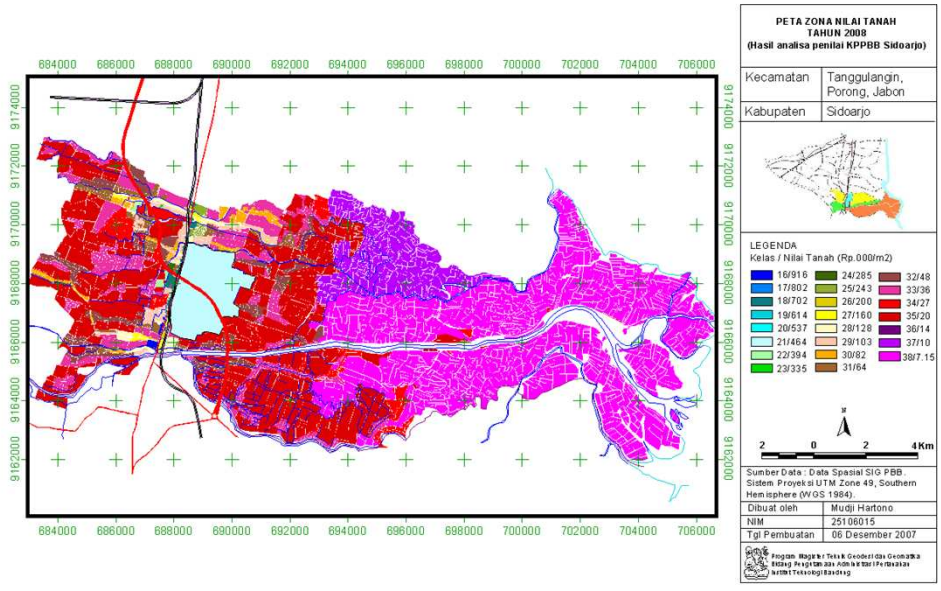
OUTPUT : LAND VALUE MAP 2008



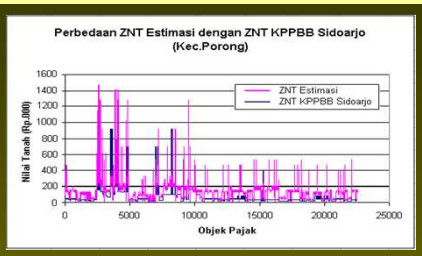
OUTPUT : LAND VALUE MAP 2008

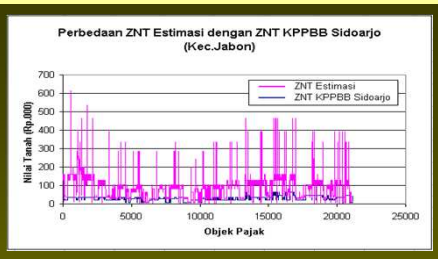


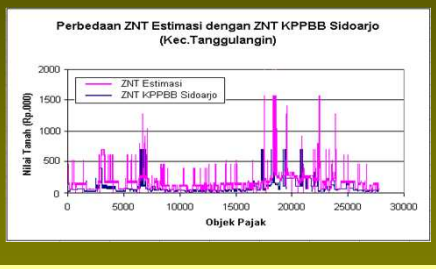
MAP of LAND VALUE ZONE TH.2008 (Land Tax office of SIDOARJO)



Comparison of LVZ Estimation with LVZ Existing (Tax Office)

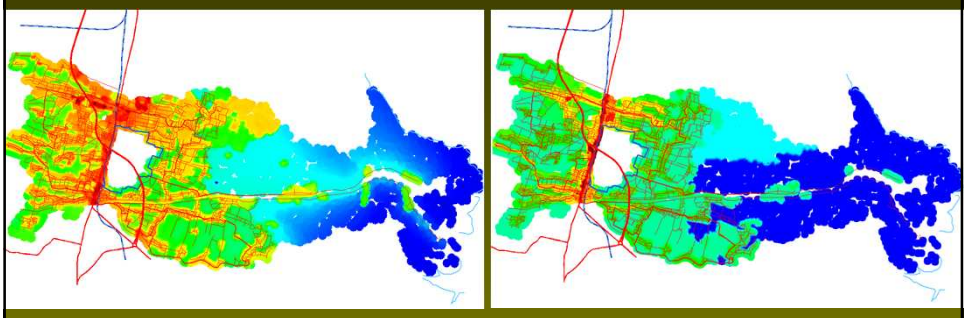


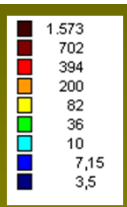




Average of LVZ estimation above LVZ Tax Office → value of LVZ Tax office stil folow the result of previous year of LVZ and the reclassification was not done yet and also the readjustment to the land prices after disaster.

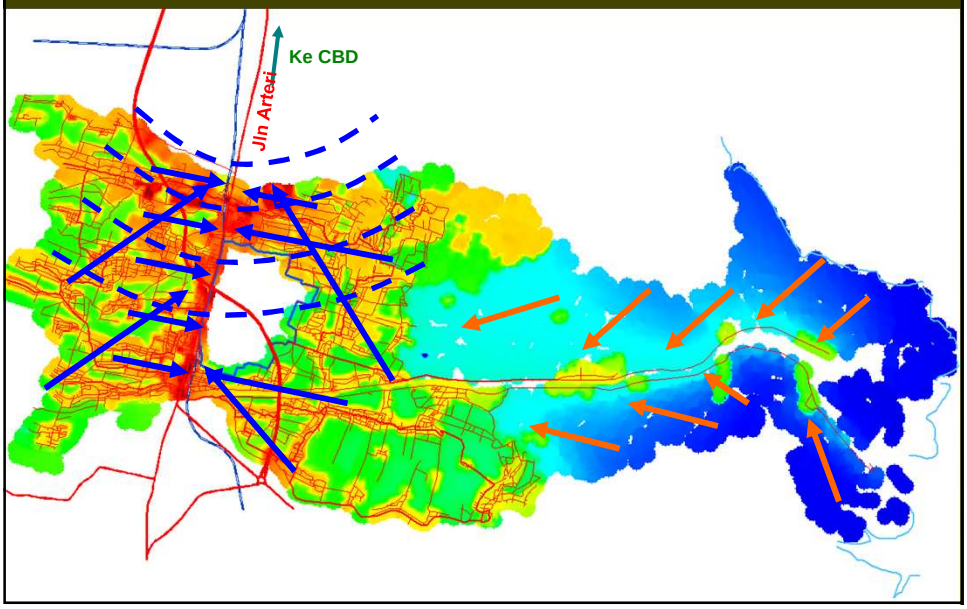
Comparison of LVZ pattern to the Existing LVZ by isoline value of land

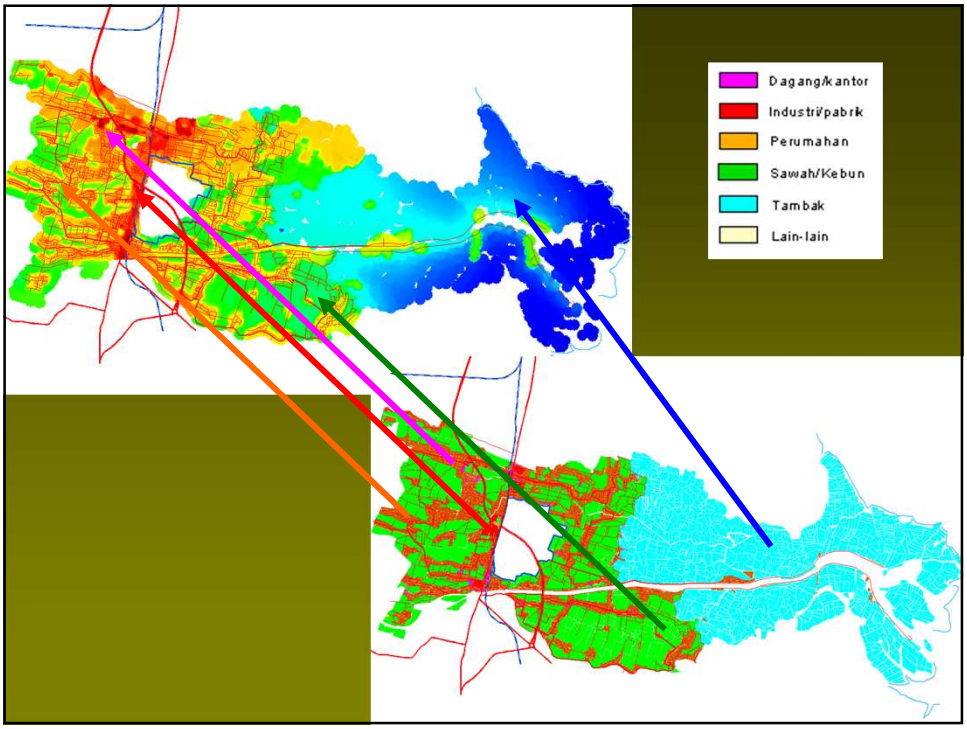


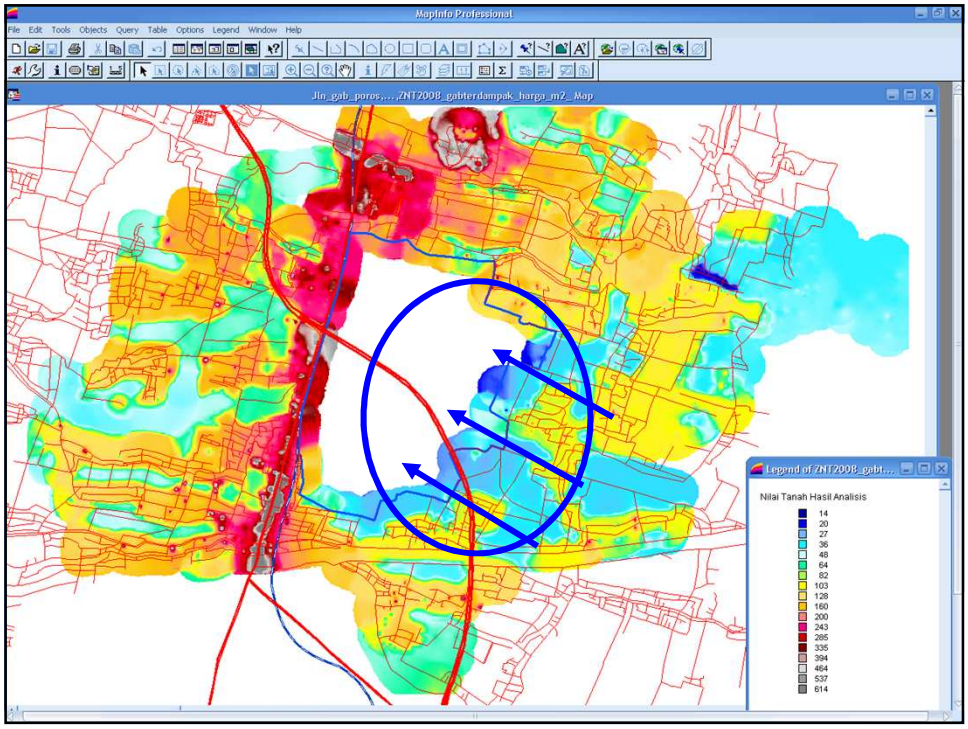


Generally LVZ existing is less than LVZ research

Analysis of Factors influence to LVZ existing and LVZ research



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Nilai Tanah Hasil Analisis
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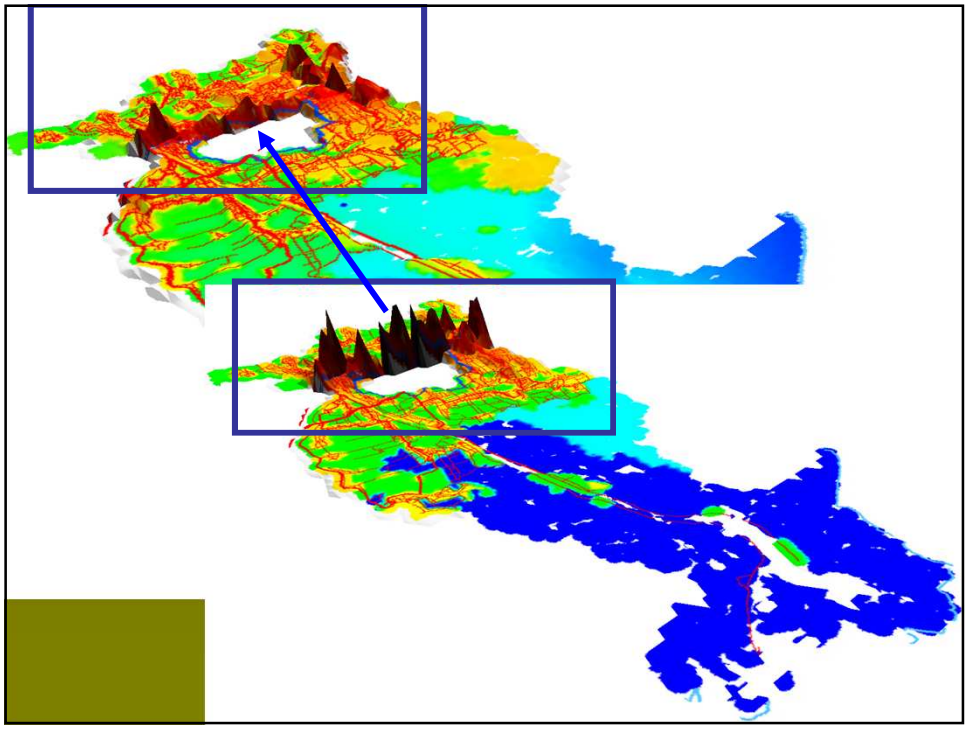
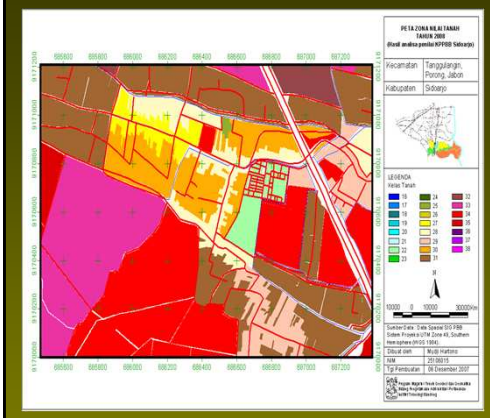
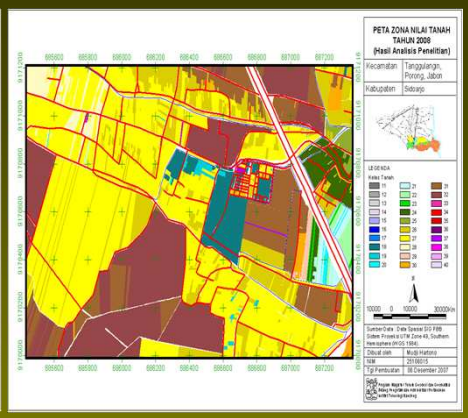


Analysis of Advantage and Weakness of the LVZ research n LVZ existing

	Advantage	Weakness
Land Value Zone classes by research analysis	More objective, because the determination each parcel of value based on the computer system such as spatial analysis, AHP method and regression analysys	Diference with common context/opinions, such as : the same object use in nearest neibour should be in the same land value
LVZ classes by Existing	Considering the common conte… then can reduce the taxati… conflicts	Tends to be subjective, LV determination is done manually and there is some generelisation.

Overcoming the weakness → need to do some re-evaluation of LV (Land value) for identifying source of errors which is not proper in common contexts





LVZ existing → LVZ pattern tends to make a group that based land use and land parcels which located near road network

LVZ research → LVZ pattern tends to make a random plots as the results of computer calculation system.

CONCLUSION AND RECOMMENDATION

CONCLUSION :

- Land value determination for the forming of Land Value Zone for PBB at near disaster-potential area can be obtained by using the combination of spatial analysis, AHP, and multiple regression approach.
- LVZ obtained from this study for sub-district.Porong, Jabon and Tanggulangin within District of Sidoarjo area can be used as a comparison for current LVZ class of PBB.
- Land value classification resulted from regression model is more various than current land value class. It is because the land value class from regression model is calculated automatically from computerized system, different with current land value class that tends to generalized because it is made from manual concept.
- The proses and method of valuation and LVZ forming can be an alternative to determine the land value Zone for the Land and Building Tax office.
- Land value zone classification resulted from analysis is more objective, because the quantitative data obtained from spatial analysis and the qualitative data is processed by AHP technique.
- LVZ map from this study still have to reevaluate because the land value predicted still does not reflect to the real condition (the value is under assessment). It will be important to create fairness in taxation and prevent some conflicts in implementation of Land and Building Taxation.

CONCLUSION AND RECOMMENDATION

Recommendation :

- The process and methods studied can become a recommendation for Land and Building Tax office in analyzing the land value zone.
- In this study still there is a weakness in model. The model passed some tests, but in model evaluation still it is not fulfill the accuration level and homogeneity requirements (COV=24.92% and PRD=1.0432). This value result is predicted because the capability of model to explain the research condition is low (R^2 = 58.71%) which means there is some other variables not included in the analysis that also have significant effect to explain the NJOP(Sale Value of Tax object) value variation. Besides, data transaction from PPAT/public notary may give bias to the model equation.
- Based on this condition, fur further study can be suggested:
  1. PPAT/public notary data transaction should be check and confirmed first to reach a valid land value data.
  2. The independent variables should be added to gain better model.
- Spatial analysis for distance measurement from its centroid should be restudied and use other alternative to get more valid distance measurement.


THANK YOU
COMMENTS N CORRECTIONS


Case study :
Sub-district of PORONG, TANGGULANGIN and JABON, within district of SIDOARJO, Indonesia
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