

Policy Analysis of Poverty Alleviation in Semarang City Using Spatial and Sectoral Approach

M Mukhtali¹

¹Department of Urban and Regional Planning, Diponegoro University, Semarang 50275, Indonesia

Email: mukti.ali@pwk.undip.ac.id

Abstract. Poverty is a multidimensional problem. Therefore, poverty reduction policy is not only related to the increase of income, but also various other dimensions such as improvement of education, health, quality of life, access to electricity, access to sanitation and water supply. Semarang City Government in 2012 initiated a policy of poverty reduction synergy program called “Gerdu Kempling”. Gerdu Kempling is an integrated policy which gives priority to addressing poverty in each village and sub-district in Semarang based on aspects of health, economy, education, infrastructure, and environment. Based on the results of Budget Allocation Analysis and Analysis of Geographic Information Systems (Poverty Mapping), it can be concluded that the program and budget allocation for poverty alleviation in Semarang City are not synchronized either spatially or sectorally.

Keywords: Poverty, Spatial Mapping, Policy Analysis

1. Introduction

Poverty is a multidimensional phenomenon that encompasses the lack of opportunities, lack of empowerment, lack of security and malnutrition and poor health. Poverty not only has the connotation of the shortage of economic factors but also includes missing out on opportunities, lack of access to or exclusion from social services and other social deprivation [1–8].

Poverty is a state of lack of goods and services needed to attain a decent standard of living, since the standard of living is different, so there is no universal concept of poverty Levitan in Effendi [9]. The problems of poverty, especially in urban areas, are generally characterized by the inability of the poor to access basic infrastructure and facilities. In addition, inadequate environmental conditions with quality housing and settlements are far below the standards of eligibility and uncertain livelihoods. Lack of access to these resources will result in poverty being difficult to overcome and the poor will be trapped in a culture of poverty resulting in behavioral attitudes that tend to be fatalistic and helpless. Therefore, poverty reduction policy is not only related to the increase of income, but also various other dimensions such as improvement of education, health, quality of life, access to electricity, access to sanitation and water supply.



Poverty is a spatially heterogeneous phenomenon, i.e. poor people tend to be clustered in specific places. The geographic variation in the incidence and magnitude of poverty is often due to factors with spatial dimensions, such as natural resource endowments, and access to services such as health care and education [10]. As part of the wider debate about the causes of poverty and specifically the interventions needed to alleviate poverty, researchers, development practitioners and policy makers are increasingly using poverty maps to visualize the spatial dimensions of poverty [10–13].

Recent development of the poverty mapping methodology has enabled us to estimate poverty indicators at a level of small areas and analyze the local-level relationship between poverty and other geographic factors. Some of the evidence of increased use of poverty maps can be found in Henninger and Snel [14]. Poverty maps are an increasingly popular mode of visualizing the spatial dimension of poverty. They help guide priority-setting and target poverty-alleviation interventions. The utility of poverty maps can be enhanced by spatially disaggregating the underlying causes of poverty.

The research was conducted to assess the budget allocation for each poverty indicator (based on Mayor's Regulation No. 18C of 2009) [15] for each region (sub-district). Indicators of poverty include vulnerable to the economy, prone to clean water and prone to sanitation. Ideally between sectoral and spatial aspects should be synchronized, meaning the higher the level of vulnerability of an indicator poverty in a region (sub - district), then the higher the budget allocated for the region, vice versa.

2. Data and Methods

Data on the population that categorized as vulnerable to the economy, vulnerable to clean water and sanitation prone as well as data on the budget allocation for each sector for each sub-district source from the Regional Development Planning Board of Semarang City. This research is a quantitative approach and using Budget Analysis and Geographic Information System (Poverty Maps). Both analysis methods are used to analyze the synchronization between the amount of budget allocation and the level of vulnerability (economy, sanitation and clean water) in each sub-district in Semarang City.

The economically vulnerable population is seen from the indicator of job type, amount of income, and ability to meet basic needs. Population prone to clean water are seen from the indicators of household access to clean water. Sanitary prone populations are seen from indicators of basic sanitation facilities owned by households.

3. Poverty Profile of Semarang City

3.1. The Amount of Poor House Hold and Poor Population by Sub District and Village

The highest number of poor people is in North Semarang Subdistrict which is 46.100 inhabitants. Second, West Subdistrict which is 40.043 inhabitants. The majority of the poor population are in the coastal area of Semarang City (Tabel 1).

3.2. Poverty Allevation Program of Semarang City

Semarang City Government accelerated poverty reduction (poverty reduction strategy) through GERDU KEMPLING (Integrated Movement in Health, Economy, Education, Infrastructure and Environment). The importance of poverty reduction program is because high poverty can also affect economic development in Semarang City. Gerdu Kempling's description is an Integrated Movement involving all stakeholders in this case City Government, Universities, State-Owned Enterprises, Private Companies, Banking which together work together to solve the problem of poverty covering all aspects and summarized in 5 areas: Health, Economy, Education, Infrastructure and Environment. The objectives of Gerdu Kempling as a strategy to accelerate poverty reduction in Semarang City by synergizing the city government program with the existing stakeholders, namely PTN and PTS, NGO, banking, BUMN, public figure. In order to optimize all potential in Semarang City in accelerating

poverty alleviation so that poverty reduction program goals and targets can be achieved efficiently and effectively. Another goal is to minimize obstacles and problems in accelerating the achievement of integrated, integrated, synergy and sustainable poverty alleviation programs. Gerdu Kempling program is implemented by providing capital assistance, goods assistance, and skills training. In addition, there are also rescue, empowerment and strengthening programs realized through health, economic, education, infrastructure development and environmental development programs

Table 1. The Amount of Poor House Hold and Poor Population by Sub District

No	Sub district	Poor House Hold (HH)	%	Poor Population (Person)	%
1	Semarang Tengah	6,088	5.2%	18,390	4.8%
2	Semarang Utara	13,775	11.7%	46,100	12.1%
3	Semarang Timur	6,425	5.4%	20,610	5.4%
4	Gayamsari	6,715	5.7%	22,109	5.8%
5	Genuk	8,167	6.9%	26,264	6.9%
6	Pedurungan	7,745	6.6%	25,832	6.8%
7	Semarang Selatan	6,943	5.9%	21,371	5.6%
8	Candisari	7,662	6.5%	24,635	6.5%
9	Gajahmungkur	5,054	4.3%	15,901	4.2%
10	Tembalang	11,194	9.5%	36,823	9.7%
11	Banyumanik	4,642	3.9%	14,643	3.9%
12	Gunungpati	6,171	5.2%	19,188	5.1%
13	Semarang Barat	12,287	10.4%	40,043	10.5%
14	Mijen	4,868	4.1%	15,067	4.0%
15	Ngaliyan	6,925	5.9%	21,951	5.8%
16	Tugu	3,272	2.8%	10,709	2.8%
Total		117,933	100.0%	379,636	100.0%

4. Results and Discussion

4.1. Analysis of Vulnerable Populations

4.1.1. Economic Vulnerability

The distribution of poor people categorized as vulnerable to the economy is in North Semarang Subdistrict, 13,371 inhabitants. The high economic vulnerability in North Semarang Sub-district due to the lack of available sources of income in the sub-district. The absence of facilities as a place to earn income due to environmental problems North Sub District Semarang often experience rob and flood, thus causing the absence of centers of activity. In addition, the source of income obtained by local residents is also not sufficient in every day / month. For details can be seen in Figure 1-2.

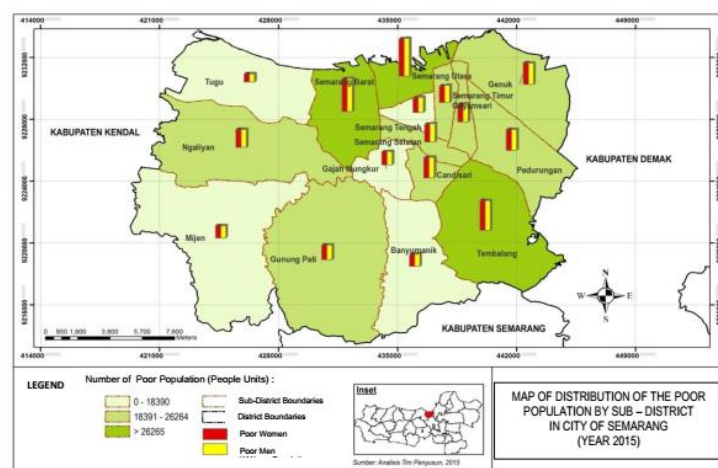


Figure 1. Distribution of Poor Population

4.1.2. Clean Water Vulnerability

Districts with poor people who are prone to access to clean water are North Semarang Subdistrict (largest number), East Semarang, Semarang Barat, South Semarang, and Tembalang. The number of poor people who are prone to access to clean water in North Semarang Sub-district is 4,816 people, not much different from West Semarang Sub-District, which is 4,602 people.

4.1.3. Sanitation Vulnerability

Kecamatan with the number of poor people prone to sanitation is in North Semarang District. The low quality of the environment in North Semarang Sub-district is one of the consequences of poor sanitation in residential areas. Not only in North Semarang Subdistrict, similar conditions are found in other coastal areas and some slums in Semarang City.

4.2. Analysis of Budgeting

4.2.1. Allocation of Budgeting for Economy Sector

Sub-districts that receive the highest budget allocation in economic sector are Kecamatan Tugu, Mijen Sub-district and Genuk Sub-district. The lowest allocation for the sector is Candisari and West Semarang. For details can be seen in Table 2 and Figure 3.

Table 2. The Allocation of Budgeting for Economy Sector

No	Sub District	Amount (IDR)	Percentage
1	Semarang Selatan	261,128,000	2.9%
2	Semarang Utara	298,983,000	3.4%
3	Semarang Timur	385,062,000	4.3%
4	Semarang Barat	256,238,000	2.9%
5	Semarang Tengah	737,572,000	8.3%
6	Genuk	793,212,000	8.9%
7	Pedurungan	609,857,000	6.9%
8	Gunungpati	711,514,000	8.0%
9	Candisari	167,930,000	1.9%
10	Gajahmungkur	229,401,000	2.6%
11	Banyumanik	335,276,000	3.8%
12	Gayamsari	365,127,000	4.1%
13	Mijen	911,780,000	10.2%
14	Ngaliyan	576,119,000	6.5%
15	Tugu	1,568,285,000	17.6%
16	Tembalang	691,905,000	7.8%
Total		8,899,389,000	100.0%

4.2.2. Allocation of Budgeting for Clean Water

Sub-districts that receive the highest budget allocation in economic sector are Kecamatan Tembalang Sub-district, Ngaliyan Sub-district and Candisari Sub-district. The lowest allocation for the sector is Semarang Selatan and Semarang Utara. For details can be seen in Table 3 and Figure 4.

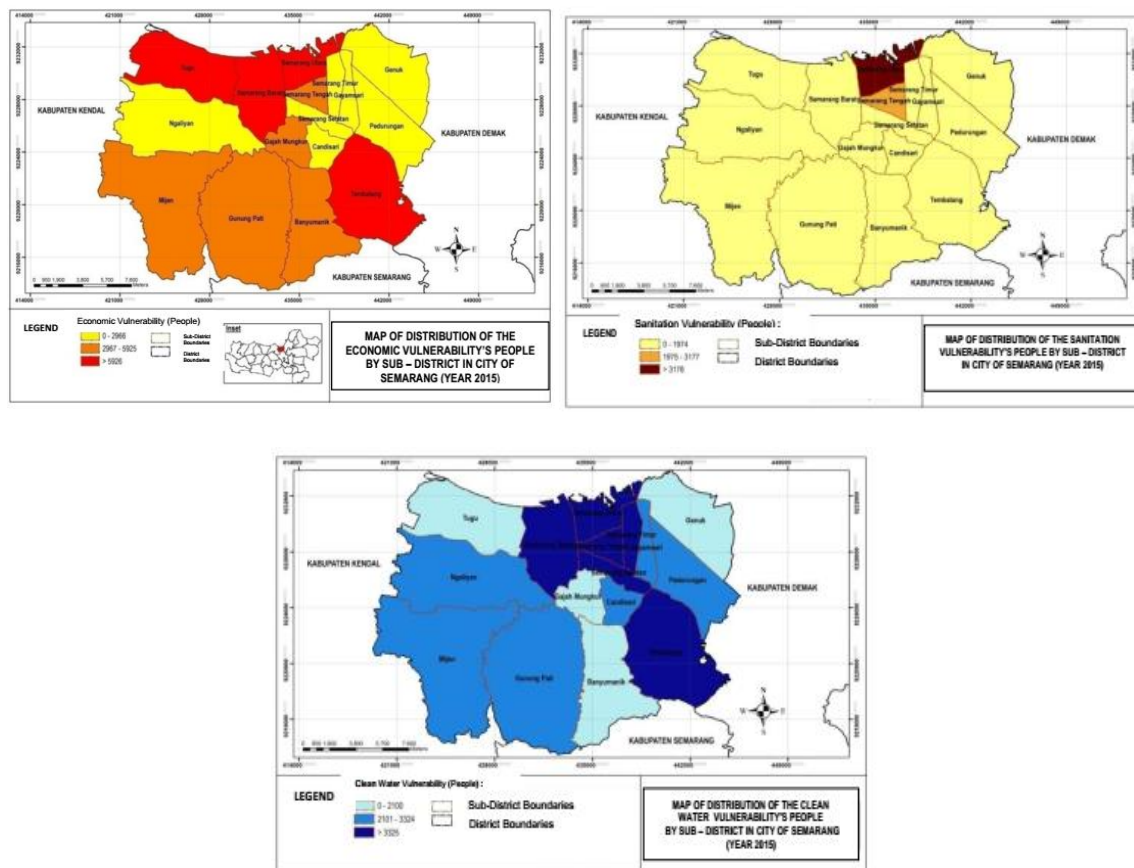


Figure 2. Map of Vulnerable Population (Economy Sector, Clean Water and Sanitation)

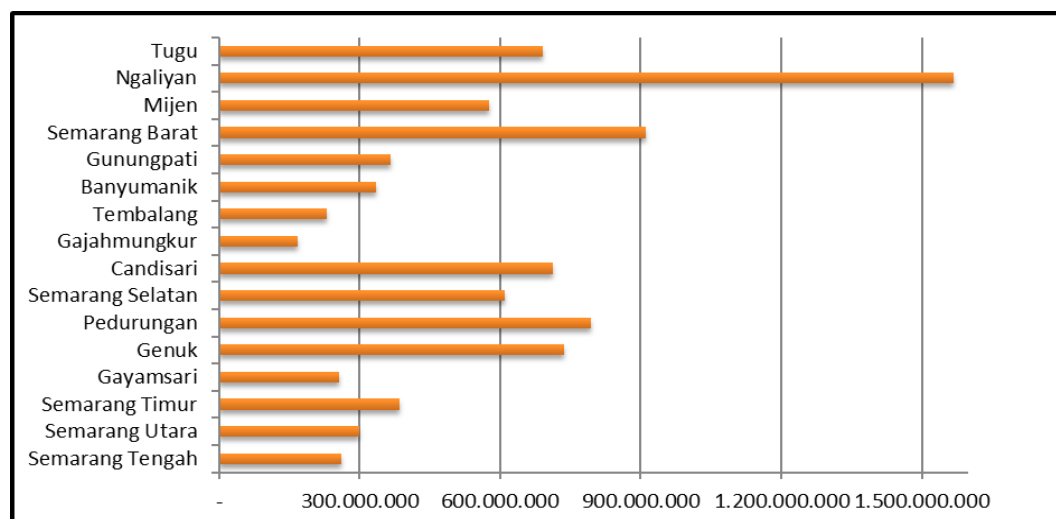
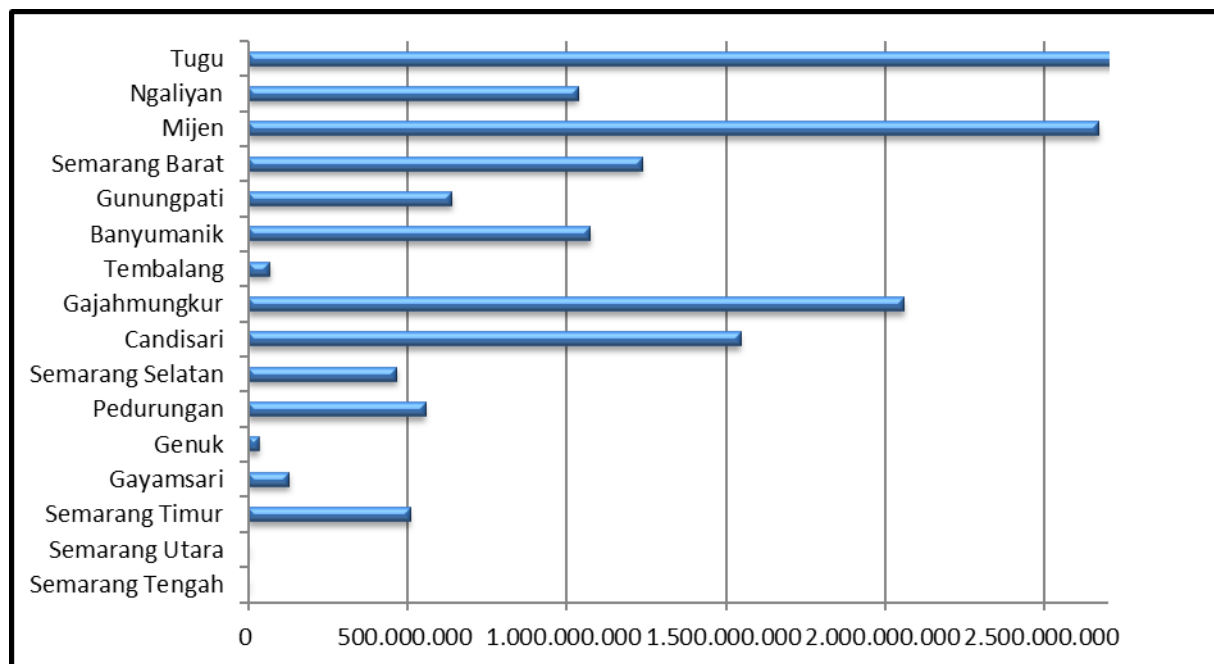


Figure 3. The Allocation of Budgeting for Economy Sector

Table 3. The Alocation of Budgetting for Clean Water

No	Sub District	Amount (IDR)	Percentage
1	Semarang Selatan	0	0.0%
2	Semarang Utara	0	0.0%
3	Semarang Timur	509,104,000	3.4%
4	Semarang Barat	129,298,000	0.9%
5	Semarang Tengah	35,000,000	0.2%
6	Genuk	556,804,000	3.8%
7	Pedurungan	466,436,000	3.2%
8	Gunungpati	1,545,323,000	10.4%
9	Candisari	2,058,747,000	13.9%
10	Gajahmungkur	67,700,000	0.5%
11	Banyumanik	1,072,739,000	7.3%
12	Gayamsari	638,437,000	4.3%
13	Mijen	1,235,540,000	8.4%
14	Ngaliyan	2,669,719,000	18.0%
15	Tugu	1,035,769,000	7.0%
16	Tembalang	2,772,067,000	18.7%
	Total	14,792,683,000	100.0%

**Figure 4.** The Alocation of Budgetting for Clean Water

4.2.3. Allocation of Budgetting for Sanitation

Sub-districts that receive the highest budget allocation in economic sector are Kecamatan Tembalang Sub-district, Ngaliyan Sub-district and Candisari Sub-district. The lowest allocation for the sector is Semarang Selatan and Semarang Utara. For details can be seen in Table 4 and Figure 5.

Table 4. The Aloction of Budgetting for Sanitation

No	Sub District	Amount (IDR)	Percentage
1	Semarang Selatan	139,306,000	8.7%
2	Semarang Utara	2,224,000	0.1%
3	Semarang Timur	51,806,000	3.3%
4	Semarang Barat	30,277,000	1.9%
5	Semarang Tengah	7,306,000	0.5%
6	Genuk	421,620,000	26.5%
7	Pedurungan	421,620,000	26.5%
8	Gunungpati	422,944,000	26.5%
9	Candisari	2,306,000	0.1%
10	Gajahmungkur	2,306,000	0.1%
11	Banyumanik	10,630,000	0.7%
12	Gayamsari	2,306,000	0.1%
13	Mijen	44,880,000	2.8%
14	Ngaliyan	2,306,000	0.1%
15	Tugu	2,306,000	0.1%
16	Tembalang	28,903,000	1.8%
Total		1,593,046,000	100.0%

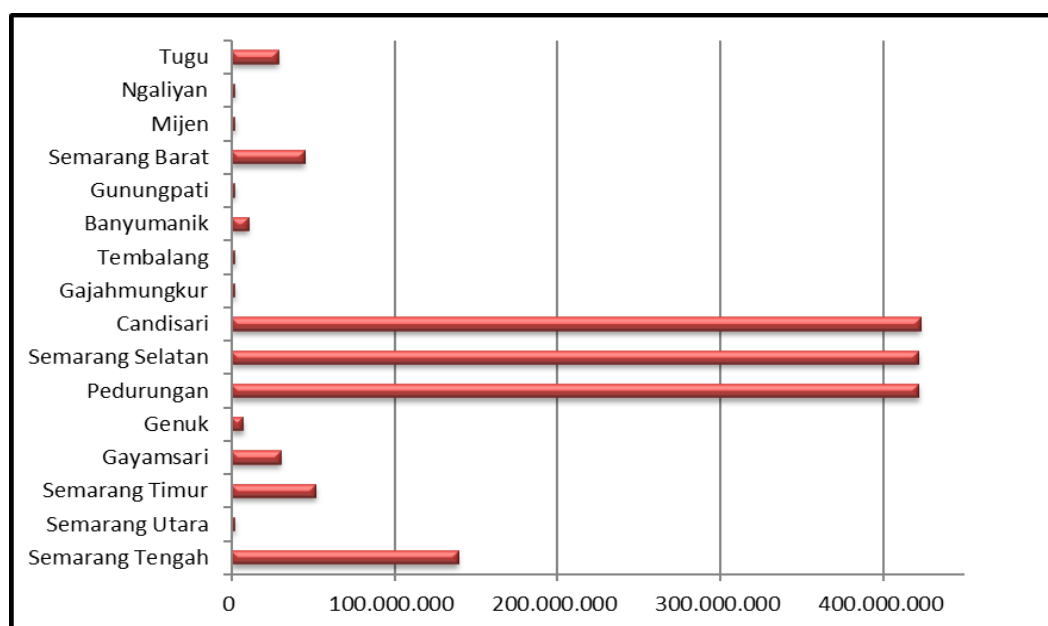


Figure 5. The Aloction of Budgetting for Sanitation

4.3. Overlay Between The Level of Vulnerability & Budget Allocation

4.3.1. Economy Sector

The right target budget allocation is in Tugu Sub-district, because the area is a sub-district with high economic vulnerability and get a high economic aid budget as well. The right target budget is also in Kecamatan Mijen and Gunungpati. Both sub-districts are sub-districts with moderate vulnerable categories and obtain a moderate budget. Sub-district is not the right target is in North Semarang District, because the district is a district with high economic vulnerability, but get low funds. For details can be seen in Figure 6.

4.3.2. Clean Water

The target budget is in Tembalang, Gajahmungkur and Genuk sub-districts. Tembalang Sub-district is a sub-district with high water prone category and get high budget also. Gajahmungkur and Genuk sub-districts are low-risk sub-districts and have low budgets. The budget that is not on target is in North Semarang Subdistrict, West Semarang, East Semarang, Central Semarang and South Semarang. These five sub-districts are high-risk sub-districts but have low budgets. For details can be seen in Figure 7.

4.3.3. Sanitation

The budget is not on target, such as in North Semarang Subdistrict, Genuk, Gunungpati, and Pedurungan. It can be seen that North Semarang Subdistrict is a sub-district that has high sanitation prone category, but it gets low budget. Sub-district of Genuk, Gunungpati and Pedurungan are sub-district with low sanitation prone category, but get high budget. For details can be seen in Figure 8.

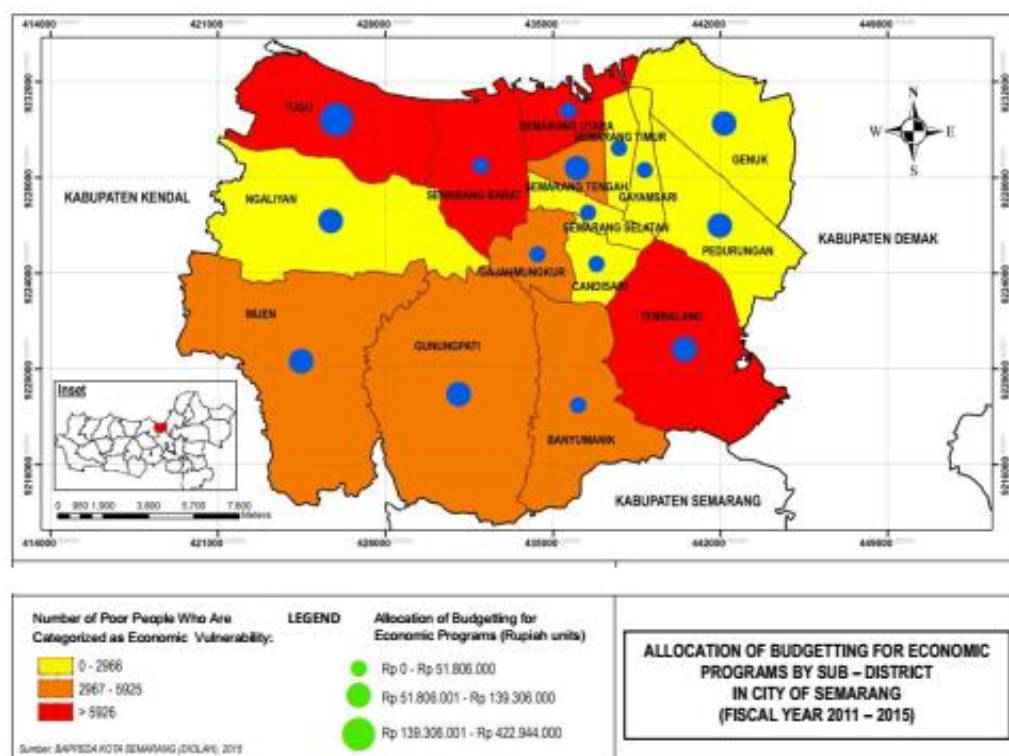


Figure 6. Overlay between the Level of Economy Vulnerability and Budget Allocation

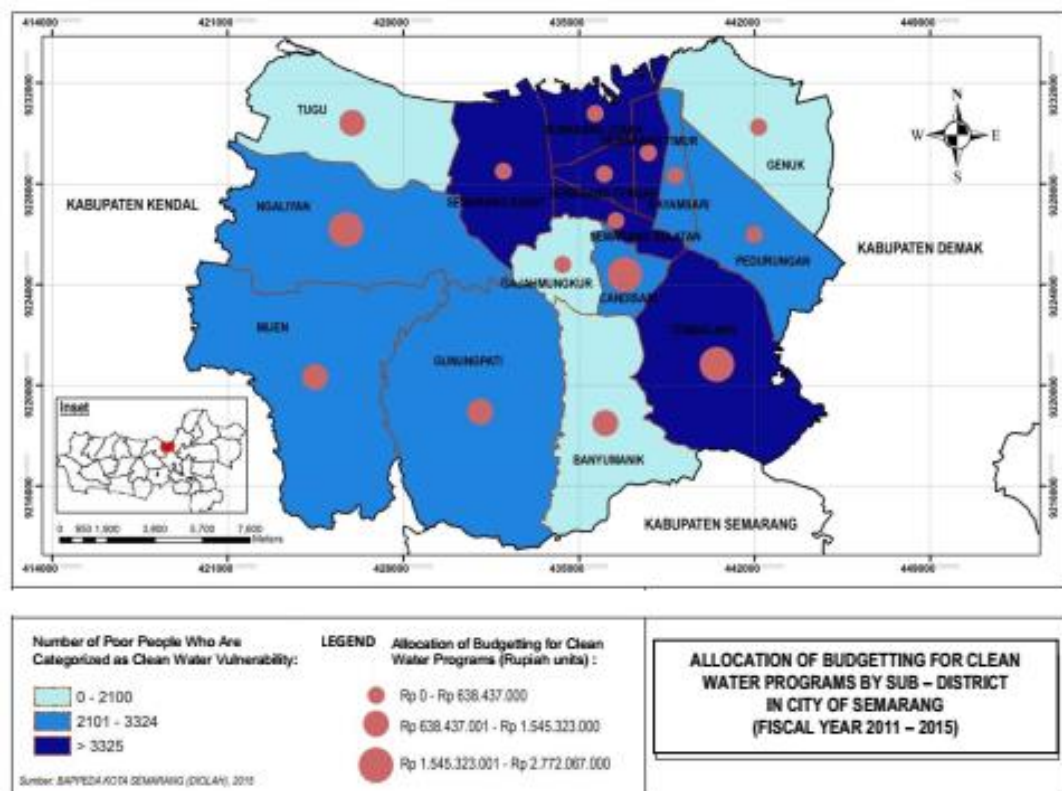


Figure 7. Overlay between the Level of Clean Water Vulnerability and Budget Allocation

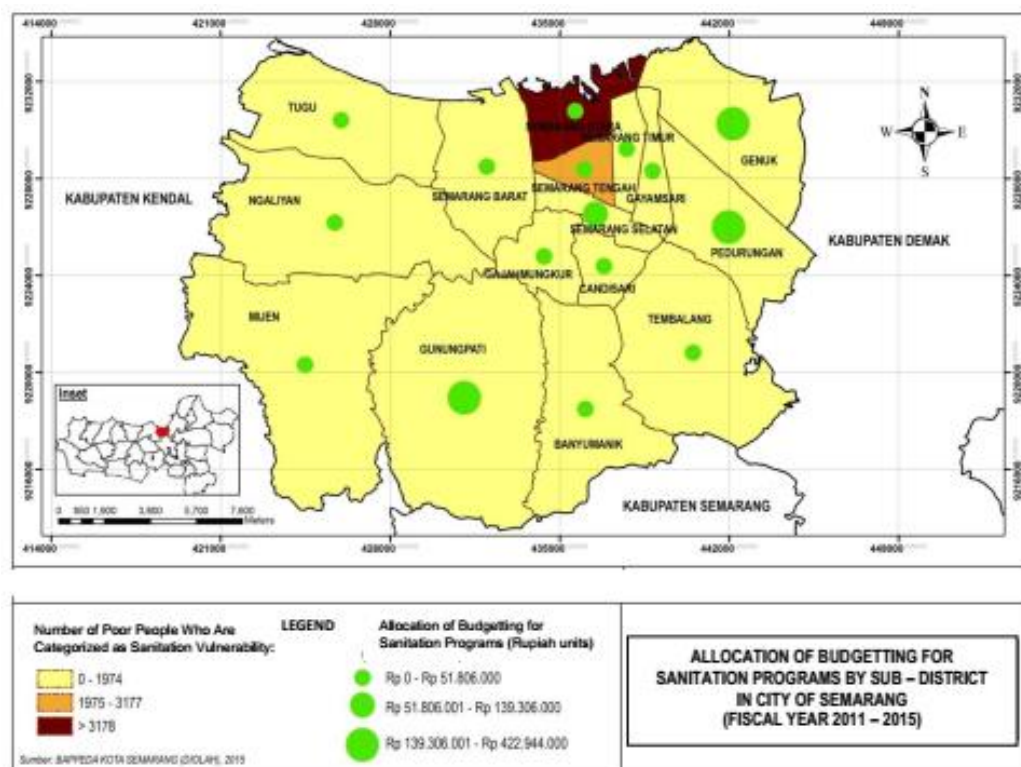


Figure 8. Overlay between the Level of Sanitation Vulnerability and Budget Allocation

4.4. Synchronization Analysis Results

Table 5. Synchronization Analysis Results

No	Sub - District	Economic Vulnerability	Budget Allocation for Economic	Clean Water Vulnerability	Budget Allocation for Clean Water	Sanitation Vulnerability	Budget Allocation for Sanitation
1	Banyumanik	Low	Medium	Low	Medium	Low	Medium
2	Candisari	Medium	Medium	Medium	Medium	Medium	High
3	Gajahmungkur	Low	Low	Low	High	Low	Low
4	Gayamsari	Medium	Low	Low	Low	Low	Medium
5	Genuk	High	Medium	Medium	Low	Medium	Medium
6	Gunungpati	Low	Medium	Medium	Medium	Medium	Low
7	Mijen	Low	Medium	Medium	High	Medium	Low
8	Ngaliyan	Medium	High	High	Medium	Medium	Low
9	Pedurungan	Medium	High	Medium	Medium	Low	High
10	Semarang Barat	High	High	Medium	Medium	Medium	Medium
11	Semarang Selatan	Medium	Medium	High	Medium	Medium	High
12	Semarang Tengah	Medium	Low	High	Low	High	Medium
13	Semarang Timur	Medium	Medium	Medium	Medium	High	Medium
14	Semarang Utara	High	Medium	Low	Low	High	Low
15	Tembalang	High	Low	Medium	Low	Medium	Low
16	Tugu	Low	Medium	Low	High	Low	Medium

Based on the result of poverty map analysis and budget which have been done, hence seen existence of mismatch between level of vulnerability of poor people in a sub district with amount of budget received. Such as in North Semarang Subdistrict, Genuk, Gunungpati, and Pedurungan. It can be seen that North Semarang Subdistrict is a sub-district that has high sanitation prone category, but it gets low budget. Overall, the budget allocation in accordance with the level of vulnerability to the economic sector only reached 31%; For clean water by 44% and the smallest for sanitation which only reached 19%. For detail can be seen in Table 5 and 6.

Table 6. Recapitulation of Synchronization Analysis Results

No	Sub - District	Economic Sector	Clean Water	Sanitation
1	Banyumanik	Not appropriate	Not appropriate	Not appropriate
2	Candisari	Appropriate	Appropriate	Not appropriate
3	Gajahmungkur	Appropriate	Not appropriate	Appropriate
4	Gayamsari	Not appropriate	Appropriate	Not appropriate
5	Genuk	Not appropriate	Not appropriate	Appropriate
6	Gunungpati	Not appropriate	Appropriate	Not appropriate
7	Mijen	Not appropriate	Not appropriate	Not appropriate
8	Ngaliyan	Not appropriate	Not appropriate	Not appropriate
9	Pedurungan	Not appropriate	Appropriate	Not appropriate
10	Semarang Barat	Appropriate	Appropriate	Appropriate
11	Semarang Selatan	Appropriate	Not appropriate	Not appropriate
12	Semarang Tengah	Not appropriate	Not appropriate	Not appropriate
13	Semarang Timur	Appropriate	Appropriate	Not appropriate
14	Semarang Utara	Not appropriate	Appropriate	Not appropriate
15	Tembalang	Not appropriate	Not appropriate	Not appropriate
16	Tugu	Not appropriate	Not appropriate	Not appropriate
Appropriate		31%	44%	19%
Not appropriate		69%	56%	81%

5. Conclusion

Based on the results of Budget Allocation Analysis and Analysis of Geographic Information Systems (Poverty Mapping), it can be concluded that the program and budget allocation for poverty alleviation in Semarang City are not synchronized either spatially or sectorally. In conclusion, for next implementation, local government should take into account an integrated approach between budget and the region as beneficiaries. Sectors of program should accommodate the potency and problems of regions.

Sub-districts with high economic vulnerability should have a higher proportion of the budget for the field than in the previous period, such as in North Semarang District. Districts with high water prone areas should have higher budget proportions for the field compared to the previous period, such as in Semarang Utara, Semarang Barat, Semarang Timur, Semarang Tengah and South Semarang. Districts with high sanitation prone should have higher budget proportions for the field compared to previous periods, such as in Semarang Utara and Central Semarang Sub-districts.

6. References

- [1] Wagle U 2002 Rethinking poverty: definition and measurement *Int. Soc. Sci. J.* **54** 155–165
- [2] Park J, Turnbull A P and Turnbull III H R 2002 Impacts of poverty on quality of life in families of children with disabilities *Except. Child.* **68** 151–170
- [3] Alkire S and Foster J 2011 Counting and multidimensional poverty measurement *J. Public Econ.* **95** 476–487
- [4] Alkire S and Sumner A 2013 Multidimensional poverty and the post-2015 MDGs *Development* **56** 46–51
- [5] Bossert W, Chakravarty S R and D'Ambrosio C 2013 Multidimensional poverty and material deprivation with discrete data *Rev. Income Wealth* **59** 29–43
- [6] Alkire S and Santos M E 2014 Measuring acute poverty in the developing world: Robustness and scope of the multidimensional poverty index *World Dev.* **59** 251–274
- [7] Alkire S and Seth S 2015 Multidimensional poverty reduction in India between 1999 and 2006: Where and how? *World Dev.* **72** 93–108
- [8] Liu Y, Liu J and Zhou Y 2017 Spatio-temporal patterns of rural poverty in China and targeted poverty alleviation strategies *J. Rural Stud.* **52** 66–75
- [9] Manning C and Effendi T N 1985 *Urbanisasi, pengangguran dan sektor informal di kota* (Diterbitkan untuk Yayasan Obor Indonesia dan Pusat Penelitian dan Studi Kependudukan UGM [oleh] Gramedia)
- [10] Erenstein O, Hellin J and Chandna P 2010 Poverty mapping based on livelihood assets: A meso-level application in the Indo-Gangetic Plains, India *Appl. Geogr.* **30** 112–125
- [11] Amarasinghe U, Samad M and Anpuhas M 2005 *Locating the poor: spatially disaggregated poverty maps for Sri Lanka* vol 96(IWMI)
- [12] Bellon M R, Hodson D, Bergvinson D, Beck D, Martinez-Romero E and Montoya Y 2005 Targeting agricultural research to benefit poor farmers: Relating poverty mapping to maize environments in Mexico *Food Policy* **30** 476–492
- [13] Bigman D and Fofack H 2000 Geographical targeting for poverty alleviation: An introduction to the special issue *World Bank Econ. Rev.* **14** 129–145
- [14] Henninger N and Snel M 2002 Where are the poor? Experiences with the development and use of poverty maps.
- [15] Pemerintah Kota Semarang 2009 *Peraturan Walikota Semarang No 18 C Tahun 2009 tentang Indikator, Kriteria dan Klasifikasi Warga Miskin Kota Semarang.*