GEMA PUBLICA
JURNAL MANAJEMEN DAN KEBIJAKAN PUBLIK
ISSN Cetak 2460-9714
ISSN Online 2548-1363

OPEN GOVERNMENT DATA IN PANDEMIC DISEASE: ENCOURAGING SPATIAL POLICY-MAKING IN EAST JAVA AND JAKARTA

Arga Pribadi Imawan[1], Rifqi Fathurrahman[2]

Abstract

This article aims to elaborate on whether the openness of spatial data by the government has an implication for the formulation of government policies. The case was taken in two provinces, namely the East Java province and the Special Capital Region (DKI) Jakarta. The case study method was conducted by referring to a database of documents, journals, news and books relating to the spatial data visualization and provincial government policies. ArcGis application is also used as one method of presenting data. As a result of the elaboration by using the concept of models of open government data (OGD) and spatial policy-making, this article discovers facts that models of OGD in East Java are at the four-stage which is data integration between government and social data. However, DKI Jakarta shows the stage of OGD models is in the integration government data stage. Both provinces showed that the policy-formulation for Covid-19 is not based on spatial data. Therefore, it can be assumed that the policy for handling Covid-19 is not effective. Both provinces show continually increasing cases of Covid-19 positive patients. These two provinces are predicated as the highest level of Covid-19 cases in Indonesia. From a practical point of view, Indonesia needs to implement spatial data-based policies to break the Covid-19 chain, as this kind of policy orientation has been successfully implemented by Taiwan which has been successfully tackling Covid-19.

Keywords: ***Open Government Data, Pandemic Disease, Policy Making, Spatial Data***

INTRODUCTION

The Covid-19 or corona pandemic in early 2020 has changed many dimensions of social life. One of them is the change on openness of data from the government (Alamo et al., 2020). The Indonesian government conduct the same protocol by providing information about the number of individuals affected by this virus day by day. Despite the negative effects of this pandemic, this situation gives a breakthrough in government day to day policy. The openness of data to the public became a new concern for government (Ubaldi, 2013), it pushed government to impose the openness of

1 Department of Politics and Government, Universitas Gadjah Mada
2 Geographic Information System (GIS) Officer at the Solidaridad Indonesia

ISSN Cetak 2460-9714
ISSN Online 2548-1363

data as the consequences of Covid-19 pandemic.

This phenomenon does not only occur in Indonesia, but all countries in the world are implementing openness of data for Covid-19. Countries have agreed that data openness is important in order to increase public awareness in facing the Covid-19 pandemic (Zhou et al., 2020). The public can access the official website to see the spreading of Covid-19. In general, the government presented two variation visualization spatial data information. First, in the form of zoning (red, green and yellow). Second, combining zoning and form of tracking motion for the citizen. In other words, every citizen affected by the Covid-19 virus can detect their motion and pattern by the government.

As one country that also faces the virus, Indonesia also provides visualization information of Covid-19. However, from one region to another, there are different visualizations on the data. East Java is one of the provinces which are very open in presenting data compared to 33 other provinces in Indonesia. The data visualization in the East Java region presented in https://radarcovid19.jatimprov.go.id. The data presented with in-depth information about the individual distribution. Every individual can be tracking his movements by utilizing the technology of sharing location on their mobile phone. Unlike the East Java region, DKI Jakarta implemented different data visualization of Covid-19. Through the page https://corona.jakarta.go.id/id/ the data visualization for the public is very minimal. The presentation of data has been divided into a zoning map which consists of three categories, namely red (danger), green (caution) and yellow (safe).

Based on those facts, the comparison between East Java and DKI Jakarta is relevant. There are several factors to compare these regions. First, both provinces have differences in implementing openness of data models. East Java Province is very open with data and the openness of data tends to be in extreme form because of the government being able to track the movement of individuals who have the status of People Under Supervision

ISSN Cetak 2460-9714
ISSN Online 2548-1363

(ODP), Patients Under Supervision (PDP) and positive patients. In contrast, the data visualization in DKI Jakarta is very minimal as it just categorizes areas in three-zone, namely red, green and yellow zones which indicate which are vulnerable.

Second, Both of two provinces provide spatial data information using the ArcGis application. This fact also becomes an interesting point to explore whether different openness data models follow spatial policy. Based on these two considerations, this article aims to find out about how open government data helps in handling crises such as the Covid-19 virus pandemic? Are there differences in policies pursued by these two governments in handling the spread of the Covid-19 virus by using spatial data, particularly in the implementation of Large-Scale Social Restrictions (PSBB)?

The Open Government Data[1] also known as OGD, is an agreement between countries to implement good governance (Ubaldi, 2013). The initial discussion about OGD has been discussed by many scholars, however Kalampokis et al., (2011a) started to elaborate on how technological implications on providing information and developing data and their major implications on how interlinked many data. On that basis, the interrelation between the data needs to be done from institutions in the government bodies, in order to achieve an effective government. They labeled these processes as decentralized data.

Kassen, (2013) based on the same point of view sees the openness of data as a basis for OGD in resolving public issues. By utilizing the collective

[1] The implementation of OGD is shown in the official website of the government which releases various data such as demographics, government budget and so on. The spirit of global governance is implied in the official government sites in each of respective countries, such as for Indonesia it summarized in https://data.go.id. According to the Organization for Economic Co-operation and Development (OECD) Open Government Data is a philosophy to promote good governance values namely transparency, accountability and value creation by making government data available to the public. Public bodies produce and assign large amounts of data and information. By making their datasets available, public institutions become more transparent and accountable to citizens. By encouraging free use, reuse and distribution of data, the government promotes the creation of innovative businesses and services that focus on citizens (OECD,org, tt). In this article, OGD refers to the official government website which releases the Covid-19 data (Ubaldi, 2013).

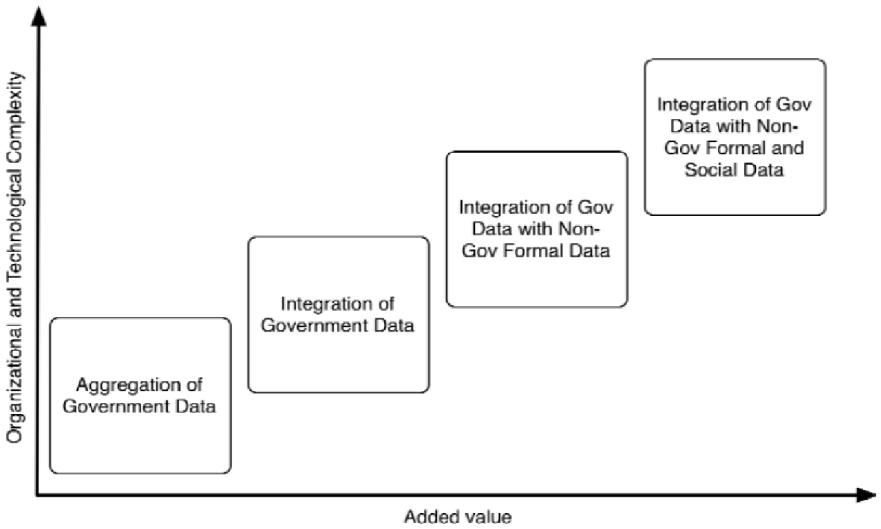
ISSN Cetak 2460-9714
ISSN Online 2548-1363

wisdom in the local communities, knowledge and vision on tackling local challenges, the government can respond more precisely to the public problems. In order to achieve that, the government needs to give a chance for civil participation. Alexopoulos et al., (2014) labeled these societies as 'prosumers', which refers to individuals who produce and use data to search for various purposes, exchange information and knowledge assistance.

In the middle of debate on benchmarks for measuring openness, data integration and distribution data, Kalampokis et al., (2011b) have summarized it as an analytical model OGD. The analytical model has been categorized into four stages, namely: 1) Aggregation of Government Data; 2) Integration of Government Data; 3) Integration of Government Data with Non-Government Formal Data; and 4) Integration of Government Data with Non-Government Data and Social Media. The level of analysis is based on the type of organization and technological complexity (see figure 1).

Figure 1

Open Government Data Stage Model



Source: Kalampokis, E., Tambouris, E., & Tarabanis, K. (2011b).

The first stage is an aggregation of government data. The basic idea is the re-presentation of data that has been integrated from government

ISSN Cetak 2460-9714
ISSN Online 2548-1363

institutions. Each institution published its data using different technologies. The collected data is then aggregated and available as data file types that are familiar with the community. In short, this stage focuses on how the community is accessing data and the speed of making data in the online form in order to be used by the community. At this stage, the community has a chance to get rich data.

The second stage is integration of government data. This stage refers to Kalampokis et al., (2011b) conception on decentralized data. At this stage, there is data integration between government agencies at the top to bottom. In the first stage, there is division of data between institutions, while in the second stage the data sharing is integrated which can then be utilized by the public. The complexity of technology at this stage is not as complex as in the first stage. However, the government has a special task to use a specific format in data integration on the web in order that each government is able to use it.

In the third stage, the complexity of technology and data sources began to occur. At this stage, there is complexity in integrating non-government data with government data for public use. The smooth integration is needed, as the public has high confidence in the accuracy and reliability of data sources from the government.

Nevertheless, there are non-government data sources that present as formal data on the web in order to be reused by the community. As an example, the data of DBpedia which is a linked data from Wikipedia and data.nytimes8 which is an open collection of data related to the New York Times. For the public, this provides enormous information which enables the public to answer several questions that are emerging in the community. Linked data is considered as the most advanced technological approach in presenting government data.

The final stage is the combination of government, non-government data, and social data. In this article, social data refers to data created voluntarily by the public through social media platforms such as Twitter and Facebook. At this stage the government is able to make a decision based on

ISSN Cetak 2460-9714
ISSN Online 2548-1363

the integration between government data and social data which provides public opinion on social media. For example, governments are able to understand public opinion in the questions of "how is public opinion of the community affected by the implementation of new policies on social distancing during the Covid-19 pandemic?".

Social data attributes owned by each individual allows the personalization of locations. The existence of these attributes is able to be a shared point which enriches the data. However, as there are variations of data formats and details, there are difficulties in integrated data collection. For example, Twitter provides a notification feature related to the longitude and latitude of the tweet point when posted via a mobile device. However, Ordnance Survey in the UK cannot provide services to mapping areas as Twitter. Therefore, these data cannot be integrated.

This analytical framework is used to analyze at what stage the OGD model is implemented in DKI Jakarta and East Java. Although this analytical framework has been developed by Veljković et al., (2014) which measures government OGD based on openness index and the depth of data, this article using a model framework which was developed by Kalampokis et al., (2011b).

Discussions about spatial data in policy-making began in the 1960-1970 when the Geographic Information System (GIS) began to develop. This development fostered the spirit of combining logical science with socio-politics (Pickles, 1995; Veregin, 1995; Gaberell & Debarbieux, 2014). The application of this concept can be found in the European Union (EU) which for decades has encouraged spatial data-based policies.

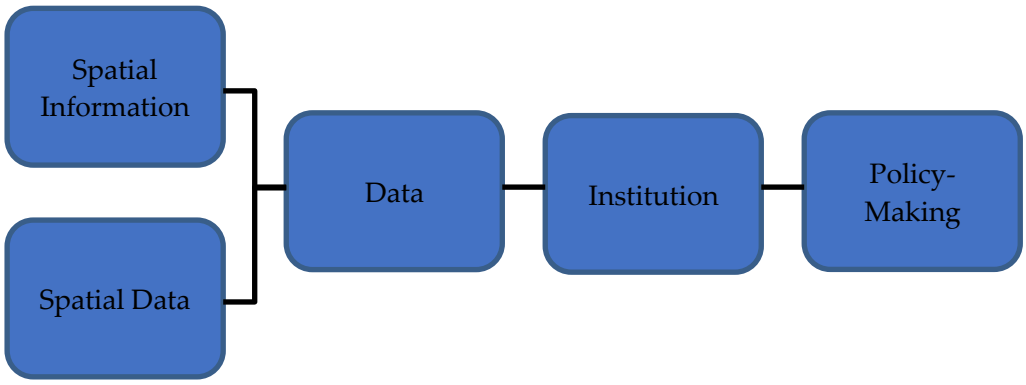
In the realm of policy making in the EU, environmental and regional policies are important concerns given the shared commitment to form regional governance (Dühr & Müller, 2012). In many cases, this basic logic applied to EU policy making, especially in environmental policy and urban planning (Janusz, 2016). Moreover, Dühr et al. (2010) explain that the EU initiate more comprehensive spatial data in order to implement evidence-

ISSN Cetak 2460-9714
ISSN Online 2548-1363

based policy making. In a previous study, Dühr (2007) explained that spatial information can be presented in various forms such as maps, cartographic processes and various other visual data.

Davoudi, (2006) supports the statement that data and information can influence policy making, however other factors such as institutions capability contribute to policy making. Zaucha, (2012) shows that data and information become the prime source on managing maritime areas in Poland. However, a weak institutional capacity would have implications for the confusion of information and the use of available data. In summary, spatial policy-making needs a strong spatial database, spatial information and qualified institutional capacity in order to formulate spatial data-based policies (see figure 2).

Figure 2
Spatial Policy Making



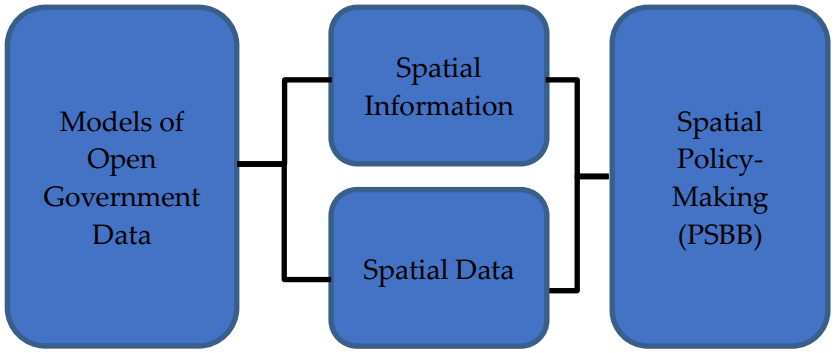
Source: analytical from the authors

The two concepts and schema of analysis above combined as the basis for the analysis of this article. The framework will focus on whether the openness of data from the provincial governments of East Java and Jakarta has implications for spatial policy-making. In this article, spatial data-based policies refers to the government's ability to implement Large-Scale Social Restrictions (PSBB) while spatial data is closely related to geographical boundaries (Dühr & Müller, 2012). On that basis, it can produce several hypotheses such as extreme openness of government data will lead to the spatial policies or extreme data openness does not contribute at all to spatial

ISSN Cetak 2460-9714
ISSN Online 2548-1363

policy-making. Furthermore, figure 3 explains the analytical framework used in this article.

Figure 3
Analytical Design



Source: analytical from the authors

In an academic perspective, this study aims to provide answers about the relationship of data openness with the ability of governments to decide on spatial based policy. As far as literary research is conducted, the openness of data is related to transparency (Alexopoulos et al., 2014; Kalampokis et al., 2011a); data privacy (Zuiderwijk & Janssen, 2014); e-government (Bertot et al., 2014; Chan, 2013; Kalampokis et al., 2011b); public reform (Davies, 2010); and smart cities (Pereira et al., 2017). This article focuses on the debate of OGD concept which will give an insight on how to understand the framework of the OGD model. While from a practical perspective, this study contributes to encouraging policymakers to considerate mapping data on OGD to formulate regulations.

Based on the data set, we find that the openness of data did not have a significant impact on the provincial government in formulating policies on tackling Covid-19. Even though the openness of data has reached to the extreme implementation, the government's ability to formulate policies based on the data is low, as the data has not been used to formulate policies.

METHODS

This article uses primary data derived from document-based articles

ISSN Cetak 2460-9714
ISSN Online 2548-1363

such as journals, books, reports and news. The nature of this research is descriptive-exploratory which enables interpretation of data to be key in order to opens new possibilities for an in-depth research (Yin, 2003). The author realizes that this article has limited exploration. One of the limitations on this exploration is the selection of two provinces which are highly unlikely to represent Indonesia. Another thing is the limitations in the logical explanation for giving practical-solutions to tackle Covid-19 pandemic.

The scope of this paper is comparing the East Java region with DKI Jakarta. The selection of East Java relies on the cause that East Java considers as one of the provinces that has good data disclosure. On the other hand, Jakarta was chosen as the data openness was not as good as East Java. Based on these considerations, the two regions were chosen to see the effect of the OGD model on data-based policy making.

This article goes through three stages. The first stage, conducting a literature review in order to see the study gap in the academic discourse of the OGD and its impact on policy making. The second stage is the collection of data from reliable sources. Third stage, write down the results of the study along with data processing through the ArcGis application. The duration of data collection for the purpose of processing data in ArcGis, the distribution maps of exposed and unexposed villages, were processed from April 13, 2020 until April 19, 2020. The collection of Covid-19 distribution data in DKI Jakarta taken during the update on May 22, 2020. RESULT

Two Provinces: Different OGD Model, Same Policy

Based on the data presentation above, there is a fundamental difference that the disclosure of data from the provincial government between East Java and Jakarta is not much different. These two provinces do not provide the exact locations of the patients in monitoring the distribution of Covid-19. However, the best spatial information provided by the Province of East Java. The government tries to divide each case detail at one plotting point / location based on a smartphone through the Whatsapp application by allowing them to share individual locations. Although they said that the point

ISSN Cetak 2460-9714
ISSN Online 2548-1363

could move within 1 km radius, this innovation was more advanced compared to Jakarta which was providing minimal information and only featured zoning.

When using the models of OGD framework, the province of East Java occupies a stage at the highest level of integration by integrating government data, non-government data, and social data. Although the data visualization does not use non-government data, the use of social data is carried out by the East Java provincial government. On the other hand, DKI Jakarta province occupies a stage at the second level, integration of government data. DKI Jakarta Province combines information from several government data sources which has been used as base information to the public (see table 1).

Table 1

Models of OGD in Two Provincial

Models of OGD	Provincial	Source of Data
Integration of Government Data with Non-Government Formal and Social Data	East Java	District / City Health Office in East Java (Government Data) Whatsapp (Social Data)
Integration of Government Data	Jakarta	Official Website of Government: https://corona.jakarta.go.id Jakarta Provincial Health Office (Government Data) Jakarta Satu (Government Data) Jakarta Smart City (Government Data

Source: compile from Official Website Jakarta and East Java Local Government

Based on the comparison table above, it appears that the East Java provincial government has innovated with social data integration. However, when compared to Jakarta, it showed that government data integration in DKI

ISSN Cetak 2460-9714
ISSN Online 2548-1363

Jakarta is more varied than East Java. Therefore, it can be concluded that each of this spatial data information has advantages and disadvantages. Another interesting point is that this spatial database has not been used as a basis for regional restrictions such as in making PSBB territorial boundaries.

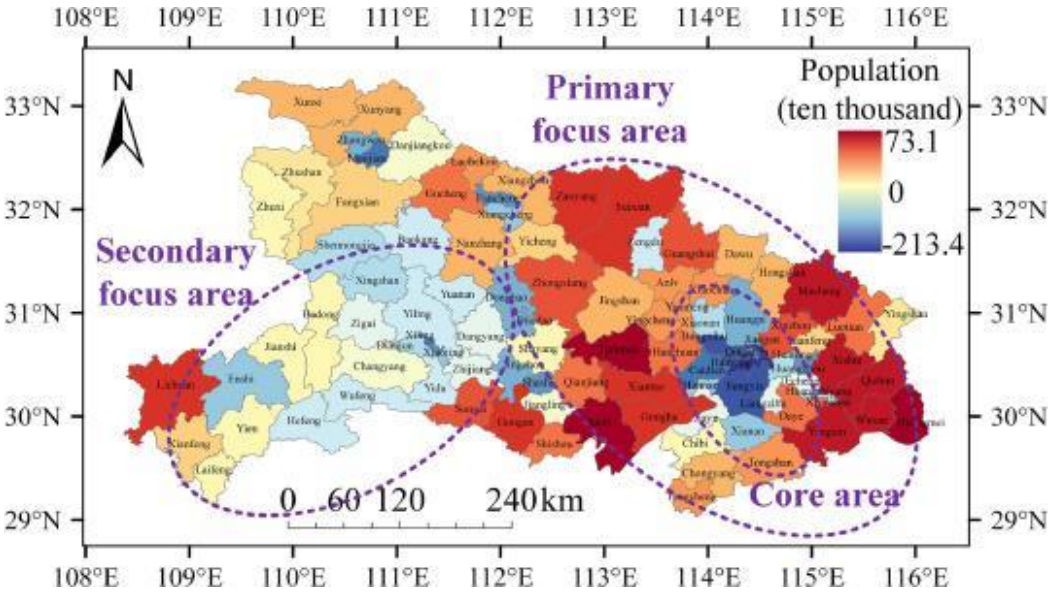
Apparently, the differences between the two about the models of OGD did not have implications for the policies of each province. Both Jakarta and East Java do not implement spatial-based policies. Whereas the visualization of the spatial data that is displayed can be the basis for the implementation of the PSBB. Tracking locations of the distribution of Covid-19 can help the government in assessing restrictions on movement in the community as there have been many local transmissions, such as by quarantining full areas that have a high number of positive cases.

If the spatial data has been used as the basis of policy making, then there will be at least two policy implications that can be taken. First is to implement quarantine to the whole house in the area. Second is to provide assistance on the distribution of goods for the person who really needs it.

The study of Zhou et al., (2020) provides an interesting example on how spatial data information plays a major role in handling Covid-19. Based on the case in China, this study overlaid data by utilizing big data. This study emphasizes the priority order of areas that should have been tested rapidly. This information has implications for the government in determining rapid test policies (see map 1).

ISSN Cetak 2460-9714
ISSN Online 2548-1363

Map 1
Spatial Data in China



Source: Zhou, C., et al. (2020)

Based on the explanation above, it can be concluded that the two regions in Indonesia, which currently occupy the highest positive Covid-19 victims in Indonesia, have different models of OGD and spatial data information. However, this difference has no implications for spatial-based policy making. Both do not include spatial data as the main source to formulating public policy, such as PSBB.

DISCUSSION

Mapping and Policy of Covid-19

Experience from East Java

The experience of handling Covid-19 in East Java shows the great visualization in the presentation of government data on the distribution of Covid-19. Through the official website https://radarcovid19.jatimprov.go.id, the East Java provincial government provides clear information about the position of individuals within a radius of 1 km from the address of the domicile of patients who have been infected. This detection is possible as a

ISSN Cetak 2460-9714
ISSN Online 2548-1363

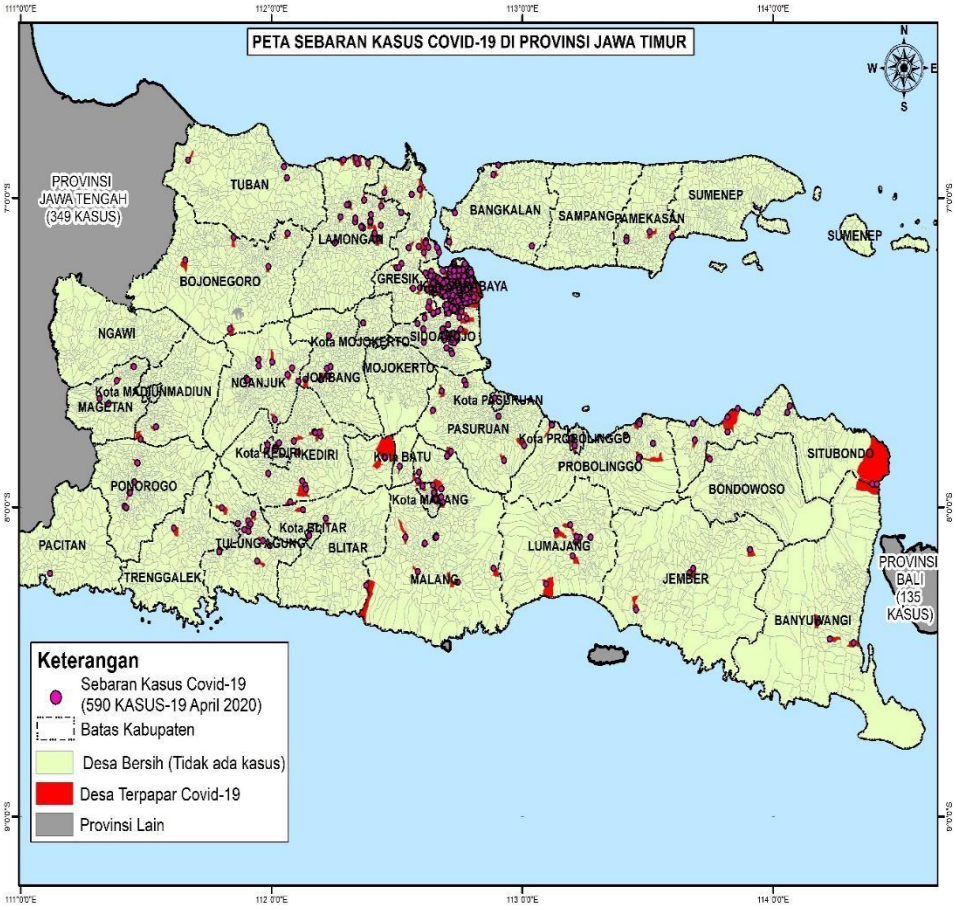
result of location sharing features in Whatsapp application that have been activated through individual devices. Individuals only need to share their location based on a particularly sub-district. This methods allows them to see the number of people infected to Covid-19 (Mahendro, A., 2020, April 3). If there is an infected patient which has passed away, the data will update soon in order to increase public awareness (Widiyani, R., 2020, April 15).

Other data sources are also used by the East Java provincial government, especially data from the District/City Health Office in East Java, which led the provincial government to visualize spatial data distribution of Covid-19. For instance, it can be looked at map 1 which overlays data using ArcGis. We collected data and gave a summary of who was exposed and not exposed at the village level. This data visualization becomes interesting as the purple and red dots represent the position of the individual affected by the virus. It also shows the zone of exposed and unexposed areas of the Covid-19 virus with different coloring. This description has been included in map 2 which shows how the visualization of covid-19 distribution data was carried out by the province of East Java.

ISSN Cetak 2460-9714
ISSN Online 2548-1363

Map 2

Mapping of Village Level who Exposed and not Exposed Covid-19 in East Java



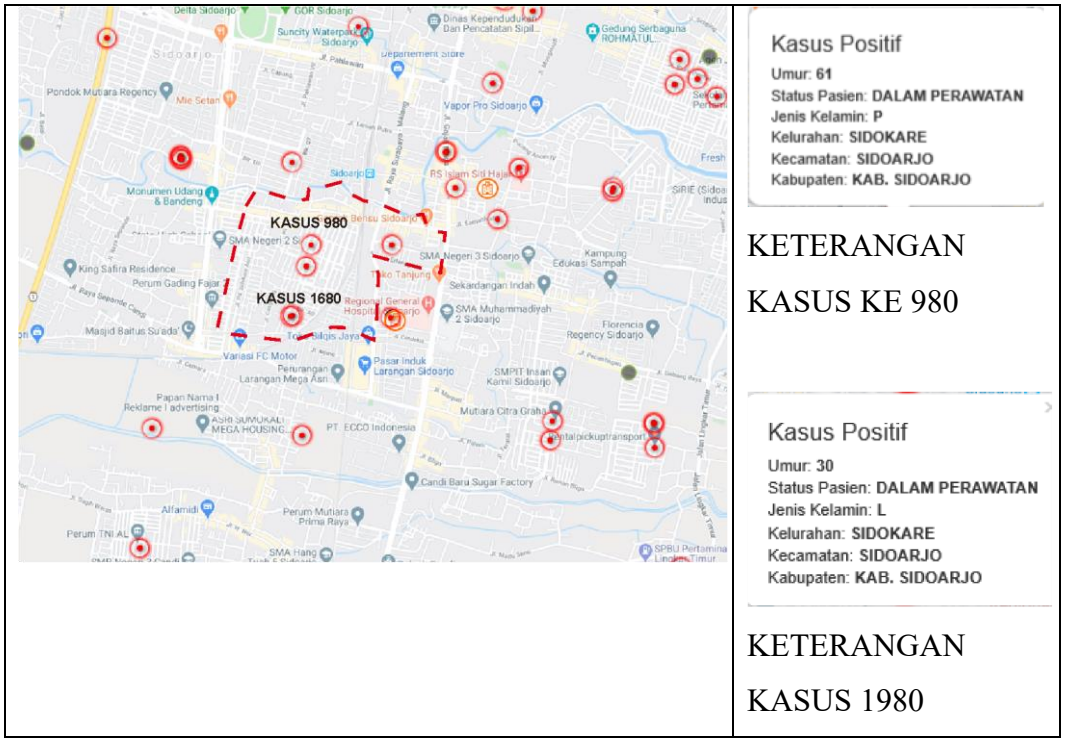
Source: Overlay Data from ArcGis

In addition to the presentation of data above, the province of East Java also released data on spatial information about the distribution of Covid-19. One example is taken from Sidokare Village, Sidoarjo Regency (look into the dotted line). The interesting thing here is the distribution of different locations in one village. With two points in one village, it is possible for the village level to impose lockdown restrictions in anticipation of the spread of Covid-19.

ISSN Cetak 2460-9714
ISSN Online 2548-1363

Map 3

Distribution of Covid-19 Cases in Village Level



Source: Overlay Data from ArcGis

This data has major implications for individuals to see the infected cases within their reach. For the government, this data should be utilized to formulate spatial data-based policies, especially in the implementation of PSBB, social distancing and physical distancing. However, this step was not taken by the East Java provincial government. The data search showed that the policies issued by the East Java provincial government were not based on spatial data information which had been use as public information

Like other regions, the initial step is formulation of a task force which divided into 4 sub-groups including: 1) Preventive promotive groups; 2) Curative cluster; 3) Cluster pressing; 4) Cluster of social economic impact (Kompas.tv, 2020, April 6). In the beginning of the pandemic, there was persuasive action by appealing to the public to remain at home. After the police chief announced PSBB, the policy shifted towards a slightly repressive control. The crowd was dissolved by provincial government officials. Besides that, there are ambulance, health workers with Personal Protective Equipment

ISSN Cetak 2460-9714
ISSN Online 2548-1363

(PPE) which conduct rapid tests in place as a form of preventive measures (Kompas, 2020, April 14).

In mid-April 2020, the situation is getting worse as there are an improvement of Covid-19 red zone. The Governor of East Java, Khofifah Indar Parawansa, imposing PSBB policy for three red zone areas namely Surabaya, Sidoarjo and Gresik ((Kompas, 2020, April 14); (Kompas.tv, 2020, April 21). Vehicle traffic flow restriction carried out to reduce the potential distribution of Covid-19 through closing 112 roads to implementing physical distancing. These roads will be closed at certain times. This control does not produce maximum results as the governor gave an instruction to provide 95 checkpoints to measure body temperature test (Kompas, 2020, April 6).

The decision coincides with the enactment of East Java Governor Regulation No. 18 of 2020 on the PSBB which consists of a punishment mechanism to the members of the community which violate the rule. The reform was carried out by the Governor of East Java Number 21 in 2020 as a substitute for Pergub Number 18 of 2020 through the developing situation.

East Java recorded as a province in the top 3 of Covid-19 cases as of April 14, 2020 (Kompas, 2020, April 14). As of May 29, 2020, the highest number of individuals affected by the Covid-19 virus were ranked second after DKI Jakarta (Detik.com, 2020, May 29) The evidence of this data showed that the policies pursued by the East Java provincial government are not effective in implementing either PSBB, social distancing or physical distancing.

Experience from Jakarta

The visualization of Covid-19 distribution map data in Jakarta is different compared to East Java. Visual mapping implemented by DKI Jakarta provincial government is only displayed in a simple form (see map 3). As one example, in the dotted line in Kalibaru village there were 12 cases. On the map of distribution, it is displayed as one point in the middle of the Kalibaru Village boundary location. This data illustrates that in one village there were

ISSN Cetak 2460-9714
ISSN Online 2548-1363

12 cases, but it did not provide any information on where the exact location of the people affected.

Map 4

Distribution of Covid-19 Cases in DKI Jakarta

Source: Overlay Data from ArcGis.

The data above showed relatively minimal information compared to the data visualization by East Java. Data visualization conducted through the Cipta Karya Agency, Spatial Planning and Land Agency, DKI Jakarta utilizes data from the website https://corona.jakarta.go.id, Jakarta Smart City, DKI Jakarta Provincial Health Office, and Jakarta Satu through the https website page: http://jakartasatu.jakarta.go.id (Diskominfotik DKI Jakarta, tta). The policy taken by DKI Jakarta through Anies Baswedan as a Governor has not different from those undertaken by East Java. Until 19 May 2020, DKI Jakarta has issued 188 policies. In January there were 3 policies; February 5 policy; March 82 policy; April 73 policy; and as of May 19, 2020 there were 25 policies (TPradipha, F., C, 2020, May 28) which the majority focused on eliminating traffic flow, the call to work from home, and the regulation of the

ISSN Cetak 2460-9714
ISSN Online 2548-1363

crowd (Hanggara, A., G, tt).

In addition to these two things, DKI Jakarta opens public participation which is labeled as the Large-Scale Social Collaboration (KSBB) where the government took part as a liaison of assistance between the community and affected communities. The public can also participate as volunteers by registering through the old Jakarta Development Collaboration Network (JDCN) website. Latest, the appeal to not homecoming has been delivered by the provincial government of DKI Jakarta.

On the other hand, the regulation on limiting the road access is not conducted by DKI Jakarta provincial government. Assignments are given to the security, TNI and Polri to conduct surveillance on maintaining a safe distance and there is no road closure Yunianto, T., K., 2020, April 7). In fact, the odd and even system is suspended, so that the public are able to using private vehicles (Sari., N., 2020, March 3).

At the end of April 2020, the transportation services in the Greater Jakarta area were finally stopped. Commuter line trains, inter-city and inter-provincial buses (AKAP) are also stopped. However, the MRT and LRT operations are still in place for a temporary stop/partly long-distance passenger train services to and from the Greater Jakarta area. Prohibitions are also given to private and public vehicles to cross national, provincial and toll roads. There is also a temporary closure of toll road access in the Ciawi and Bogor (Anwar, M., C., 2020, April 24).

The policy steps taken by DKI Jakarta are not much different from those carried out by East Java. Even worse, this step gives the title of DKI Jakarta with the highest increase in Covid-19 positive cases as of May 29, 2020 with 125 cases (Detik.com, 2020, May 29). In other words, the same hypothesis arises that this data proves the policies that have been taken are not effective.

ISSN Cetak 2460-9714
ISSN Online 2548-1363

CONCLUSION

The article has proven that although the East Java regional models of OGD are more utilizing social data through the Whatsapp page and even though both regions (East Java and DKI Jakarta) produce detailed spatial data information, the level of decision making for spatial data-based policies for PSBB remains the same between the two. Furthermore, it showed that both provincial governments are not capable enough to use data visualization and data dissemination to break the Covid-19 chain. Other variables such as political, ideological and cultural are also taken into consideration as one of the core policy-based spatial data. However, in this article, these variables are not tested.

The lack of use of spatial data as a policy base has become a major issue. Indonesia should encourage the use of spatial-based policy since it can help to break the Covid-19 chain. As social scientists argue, open data can build collaboration between the central government with local government or even with the citizens. Open data capable of creating real-time solutions to challenges in several issues such as: agriculture, health, transportation, urban planning and so on. It is also able to promote greater transparency. If countries are able to manage this matter, we will be optimistic and welcome a new era of policy and decision-making based on data.

In a more reflective case, Taiwan is the best sample to see how data contributes to solving problems. Based on Taiwan's experience, the combination of data disclosure with the government's ability to formulate policies, it takes a significant role in tackling the spread of Covid-19. One is to develop telephone signal monitors and notify authorities when quarantined individuals leave a quarantine location or turn off their smartphone devices. Authorities then contact or visit those who triggered the warning within 15 minutes. Local officials also help by calling twice a day to make sure people do not avoid tracking by leaving their phone at home (Broga, 2020, March 31).

Another reason Taiwan can implement this policy is based on the

ISSN Cetak 2460-9714
ISSN Online 2548-1363

maximum merging of government data, non-governmental and social data. The models of OGD framework in Taiwan are categorized at the highest stage, namely integration of government data, non-government data, and social data. Although this violates individual privacy, this step contributed major implications to reducing Covid-19. It is not surprising that Taiwan was predicted as the fastest country to eradicate Covid-19.

REFERENCES

Alamo, T., Reina, D. G., Mammarella, M., & Abella, A. (2020). Open Data Resources for Fighting COVID-19. 1–30. http://arxiv.org/abs/2004.06111.

Alexopoulos, C., Zuiderwijk, A., & Charapabidis, Y. (2014). Designing a Second Generation of Open Data Platforms : Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 230–241. https://doi.org/10.1007/978-3-662-44426-9.

Bertot, J. C., Gorham, U., Jaeger, P. T., Sarin, L. C., & Choi, H. (2014). Big data, open government and e-government: Issues, policies and recommendations. Information Polity, 19(1–2), 5–16. https://doi.org/10.3233/IP-140328.

Broga, D. (2020, March 31). How Taiwan used tech to fight COVID-19. Accessed in https://www.techuk.org/insights/news/item/17187-how-taiwan-used-tech-to-fight-covid-19.

Chan, C. M. L. (2013). From open data to open innovation strategies: Creating e-services using open government data. Proceedings of the Annual Hawaii International Conference on System Sciences, 1890–1899. https://doi.org/10.1109/HICSS.2013.236.

CNN Indonesia (2020 April 19). Bahas PSBB, Khofifah Panggil 3 Kepala Daerah di Jatim. Retrieved from https://www.cnnindonesia.com/nasional/20200419012336-20-494900/bahas-psbb-khofifah-panggil-3-kepala-daerah-di-jatim.

ISSN Cetak 2460-9714
ISSN Online 2548-1363

Davies, T. (2010). Open data, democracy and public sector reform: A look at open government data use from data. gov. uk. 1–47. http://www.opendataimpacts.net/report/.

Davoudi, S. (2006). Evidence-based planning: Rhetoric and reality. Disp, 165(2), 14–24. https://doi.org/10.1080/02513625.2006.10556951.

Detik.com (2020, May 29). Sebaran 25.216 Kasus Positif Corona Per 29 Mei, DKI-Jatim Masih Terbanyak. Retrieved from https://news.detik.com/berita/d-5033583/sebaran-25216-kasus-positif-corona-per-29-mei-dki-jatim-masih-terbanyak.

Diskominfotik DKI Jakarta (tta). Peta Persebaran Positif Covid-19. Retrieved from https://corona.jakarta.go.id/id/peta-persebaran.

Dühr, S., & Müller, A. (2012). The Role of Spatial Data and Spatial Information in Strategic Spatial Planning. Regional Studies, 46(4), 423–428. https://doi.org/10.1080/00343404.2012.669535.

Dühr, S. (2007). The visual language of spatial planning: exploring cartographic representations for spatial planning in Europe. Routledge.

Dühr, S., Colomb, C., & Nadin, V. (2010). European spatial planning and territorial cooperation. Routledge.

Gaberell, S., & Debarbieux, B. (2014). Mapping regions, framing projects. A comparative analysis on the role of mapping in the region-building process of two European regions. Geoforum, 52, 123–136. https://doi.org/10.1016/j.geoforum.2014.01.004.

Haliem, B. (2020, April 24). Pemprov Jatim berlakukan PSBB Surabaya, Gresik & Sidoarjo mulai 28 April. Retrieved from https://regional.kontan.co.id/news/pemprov-jatim-berlakukan-psbb-surabaya-gresik-sidoarjo-mulai-28-april.

Hanggara, A., G (tt). Linimasa Kebijakan Penanganan Pandemi Covid-19 di Jakarta. Retrieved from https://smartcity.jakarta.go.id/blog/507/linimasa-kebijakan-penanganan-pandemi-covid-19-di-jakarta.

Janusz, J. (2016). Toward the quality assessment of multi-criteria data in

ISSN Cetak 2460-9714
ISSN Online 2548-1363

planning for housing areas. The Sustainable City XI, 1(Sc), 105–116. https://doi.org/10.2495/sc160101.

Kalampokis, E., Tambouris, E., & Tarabanis, K. (2011a). A classification scheme for open government data: Towards linking decentralised data. International Journal of Web Engineering and Technology, 6(3), 266–285. https://doi.org/10.1504/IJWET.2011.040725.

Kalampokis, E., Tambouris, E., & Tarabanis, K. (2011b). Open government data: A stage model. Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 6846 LNCS, 235–246. https://doi.org/10.1007/978-3-642-22878-0_20.

Kassen, M. (2013). A promising phenomenon of open data: A case study of the Chicago open data project. Government Information Quarterly, 30(4), 508–513. https://doi.org/10.1016/j.giq.2013.05.012.

Kompas.com (2020, April 14). Pemkot Surabaya Masih Mengkaji Kebijakan PSBB. Retrieved from https://www.kompas.tv/article/76071/pemkot-surabaya-masih-mengkaji-kebijakan-psbb.

Kompas.tv (2020, April 19). Pasien Positif Corona Meningkat, Gubernur Jatim akan Ajukan PSBB ke Menteri Kesehatan. Retrieved from https://www.youtube.com/watch?v=4Ba4EIN2T10.

Kompas.tv (2020, April 21). Gubernur Khofifah Ajukan PSBB untuk Surabaya, Sidoarjo & Gresik. Retrieved from https://www.youtube.com/watch?v=d48GnnQZPgA.

Kompas.tv (2020, April 6). Soal Kendala Penanganan Covid-19 di Jawa Timur, Seperti Apa?. Retrieved from https://www.youtube.com/watch?v=ExACHkZtAFA.

Mahendro, A. (2020, April 3). Pemprov Jatim Rilis Whatsapp Radar Covid-19. Retrieved from https://www.gatra.com/detail/news/474273/info-pemda/pemprov-jatim-rilis-whatsapp-radar-covid-19.

Organization for Economic Co-operation and Development – OECD (tt). Open Goverment Data. Accessed in

ISSN Cetak 2460-9714
ISSN Online 2548-1363

https://www.oecd.org/gov/digital-government/open-government-data.htm.

Pereira, G. V., Macadar, M. A., Luciano, E. M., & Testa, M. G. (2017). Delivering public value through open government data initiatives in a Smart City context. Information Systems Frontiers, 19(2), 213–229. https://doi.org/10.1007/s10796-016-9673-7.

Pickles, J. (1995). Representation in an electronic age: geography, GIS and democracy'in Pickles, J.(ed) Ground Truth: The social implication of Geographic Information Systems.

Sari., N. (2020, March 3). Berbagai Kebijakan Pemprov DKI Hadapi Covid-19 Dalam Sepekan Terakhir. Retrieved from https://megapolitan.kompas.com/read/2020/03/20/11082501/berbagai-kebijakan-pemprov-dki-hadapi-covid-19-dalam-sepekan-terakhir.

TPradipha, F., C (2020, May 28). Sederet Kebijakan Pemprov DKI Jakarta Tangani Covid-19 Sejak Januari: Bulan Maret Terbanyak. Retrieved from https://www.tribunnews.com/metropolitan/2020/05/28/sederet-kebijakan-pemprov-dki-jakarta-tangani-covid-19-sejak-januari-bulan-maret-terbanyak.

Ubaldi, B. (2013). Open government data. oecd-ilibrary.org. Accessed in https://testdata.gov.hr/sites/default/files/library/5k46bj4f03s7.pdf.

Veljković, N., Bogdanović-Dinić, S., & Stoimenov, L. (2014). Benchmarking open government: An open data perspective. Government Information Quarterly, 31(2), 278–290. https://doi.org/10.1016/j.giq.2013.10.011.

Veregin, H. (1995). Computer innovation and adoption in Geography. In Ground truth: The social implications of geographic information systems (p. 101). Guilford, New York.

Widiyani, R. (2020, April 15). Update Mudah Data Virus Corona di Jawa Timur, Cek di Radar Covid 19 Jatim. Retrieved from https://news.detik.com/berita/d-4977987/update-mudah-data-virus-corona-di-jawa-timur-cek-di-radar-covid-19-jatim.

Yin, R. K. (2003). Case study research: design and methods (ed.). Thousand

ISSN Cetak 2460-9714
ISSN Online 2548-1363

Oaks.

Yunianto, T., K. (2020, April 7). PSBB Disetujui Menkes, Dishub Jakarta Pastikan Tak Tutup Akses Jalan. Retrieved from https://katadata.co.id/berita/2020/04/07/psbb-disetujui-menkes-dishub-jakarta-pastikan-tak-tutup-akses-jalan.

Zaucha, J. (2012). Offshore Spatial Information - Maritime Spatial Planning in Poland. Regional Studies, 46(4), 459–473. https://doi.org/10.1080/00343404.2012.668615.

Zhou, C., Su, F., Pei, T., Zhang, A., Du, Y., Luo, B., Cao, Z., Wang, J., Yuan, W., Zhu, Y., Song, C., Chen, J., Xu, J., Li, F., Ma, T., Jiang, L., Yan, F., Yi, J., Hu, Y., … Xiao, H. (2020). COVID-19: Challenges to GIS with Big Data. Geography and Sustainability, 1(1), 77–87. https://doi.org/10.1016/j.geosus.2020.03.005.

Zuiderwijk, A., & Janssen, M. (2014). The negative effects of open government data - Investigating the dark side of open data. ACM International Conference Proceeding Series, 147–152. https://doi.org/10.1145/2612733.2612761