

Harnessing Digital Technology in 3T Policy to Address COVID-19 Pandemic

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Abstract: In the face of the COVID-19 pandemic and the economic downturn amidst the scarcity of limited resources and increasingly complex public problems, the Indonesian government must seek to resolve both problems. To address COVID-19 pandemic issues, the Indonesian government promotes the “3M” protocols and “3T” policy. As the result, public is largely well-acquainted with “3M” protocols, but on the other hand most people are still unaware about “3T” policy in the context of pandemic mitigation. To overcome this gap, Indonesian government needs to make full use of digital technology to handle COVID-19 pandemic and address a wide range of pandemic-related issues. Thus, this study analyses the regional development disparities in Indonesia related to the use of digital technology in 3T policy to address COVID-19 pandemic and the challenges in the implementation of 3T policy in Indonesia using qualitative methods. This study shows that regional development disparities in Indonesia causes the occurrence of inequality in various sectors, such as access to internet. The challenges in the implementation of 3T policy that occur in Indonesia such as infrastructure disparities, lack of government-oriented coordination, human resources inequality, and people’s indiscipline impacts on the efforts to flatten the country’s COVID-19 incidence curves and maintain low mortality rates.

1 INTRODUCTION

The spread of COVID-19 continues to occur rapidly and widely in Indonesia, resulting in changes in social, political, economic, cultural, and religious life in various places (Atlani, 2000; Klein, 1997). The COVID-19 pandemic was first detected on December 31, 2019 in Wuhan City, Hubei Province, People's Republic of China. Furthermore, World Health Organization (WHO) classifies COVID-19 as a global pandemic based on the massive number of transmission cases that have occurred in more than 110 countries in the world.

Based on the latest data obtained from Indonesia COVID-19 Task Force (updated on September 12, 2021), there were 4,167,511 cases in Indonesia, of which 109,869 were active cases, 3,918,753 people recovered, and 138,889 people died. In addition, COVID-19 cases in Indonesia have spread to 510 districts/cities in 34 provinces, with the daily COVID-19 positivity rate as of 12 September 2021 at 3.05%. This figure is already below the standard set by WHO, which is below 5%. It is noted that this figure has also decreased from its highest peak,

namely on June 22, 2021, where the positivity rate reached 51.62%.

The Indonesian Government at the beginning of the emergence of the COVID-19 pandemic actively minimized the virus’ threat. Furthermore, the Indonesian government took several policies, such as installing thermal scanners, preparing hospitals to handle COVID-19 patients, and closing access to and from China. However, this response was not effective because the Indonesian Government did not carry out massive preventive tests on people who were at risk of being infected with COVID-19. The response of the Indonesian Government certainly have an impact on the decline in public trust in the government, including the subsequent COVID-19 response policies. Finally, the Indonesian Government responded to the problem of the COVID-19 pandemic after the discovery of the first case on March 2, 2020. The responses from the Indonesian government that were deemed less serious resulted in the WHO writing a letter to President Joko Widodo and ask the Indonesian government to declare a state of emergency for COVID-19 nationally. Three days later, the Indonesian government formed a COVID-19 Task Force, which at that time was led by the Head

of the National Disaster Management Agency (Badan Nasional Penanggulangan Bencana-BNPB) Doni Monardo who would coordinate the Ministry of Health, Indonesian Armed Force, and Indonesia Police.

The Indonesian government has finally designated COVID-19 as a national disaster through Presidential Decree of the Republic of Indonesia Number 12 of 2020 concerning the Determination of Non-Natural Disasters for the Spread of Corona Virus Disease 2019 (COVID-19). To catch up with the delay in handling the COVID-19 pandemic, the Indonesian government has finally taken a policy that can minimize the effects of losses both from the economic and health aspects. These policies include: a). Two types of social distancing, namely Large-Scale Social Restrictions and Enforcement of Community Activity Restrictions Level 1-4 in accordance with the criteria for the level of the pandemic situation based on the results of the assessment in each region; b). The Indonesian government has also implemented a 3T (tracing, test, and treatment) policy strategy in dealing with COVID-19; c). COVID-19 vaccinations; and d). The Indonesian government provides social aids for the economic recovery of communities affected by the COVID-19 pandemic.

Since the entry of COVID-19 into Indonesia, the Indonesian government has never implemented a lockdown or regional quarantine policy. The Indonesian government does not want to implement a lockdown policy is because it will disrupt the economy. The regional quarantine policy certainly has an impact on deteriorating public health conditions and does not have a significant effect in increasing national economic growth. However, the policies taken have saved aspects of the Indonesian economy from falling. This can be seen from several countries in the world that have adopted a lockdown policy, such as the United States and Britain. Inflation in the United States currently reaches 7.9 percent in February 2022 (nytimes.com, 2022). Although the United States has implemented a lockdown policy, the country has not been able to suppress the spread of COVID-19. This can be seen from the high number of cases of COVID-19 infection in the United States, which is the highest case in the world. This condition implies that the lockdown policy does not necessarily bring about positive impact in reducing COVID-19 spread.

In the face of the COVID-19 pandemic and the economic downturn amidst the scarcity of limited resources and increasingly complex public problems, the Indonesian government must seek to resolve the

pandemic and economic problems. The government is faced with two choices, namely prioritizing the handling of the COVID-19 pandemic or the national economy. Due to limited resources on the one hand and increasingly complex public problems on the other, it is impossible for the government to solve these problems simultaneously. The government then determines the choice of solving these public problems based on a priority scale, namely running the economy and not doing a lockdown to overcome the health crisis caused by the pandemic (Somit and Peterson, 2003; Dunn, 2004). The Indonesian government must be able to make policies that are able to balance health interests and economic interests in dealing with the COVID-19 pandemic.

Although initially the Indonesian government was deemed unable to cope with the COVID-19 pandemic together with optimal economic recovery, currently the Indonesian government is able to take policies that are in accordance with the duality principles. The success of the Government of Indonesia in improving the handling of the COVID-19 pandemic is also appreciated by WHO (Indonesian House of Representative, 2021). The handling of the COVID-19 pandemic must apply the principle of duality, a principle that emphasizes that efforts to save the health of citizens can only run well when the economic development process gets attention and is adjusted to the protection of health as well. The reorientation of the duality principle between saving public health and economic development in the face of the COVID-19 pandemic.

Indonesian government also promotes the “3M” protocols (which stands for menggunakan masker/mask-wearing, mencuci tangan/hand-washing, and menjaga jarak/social-distancing. The public is largely well-acquainted with “3M” protocols, but on the other hand most people are still unaware about “3T” policy in the context of pandemic mitigation, according to a recent survey by research firm IPSOS Indonesia (Jakarta Post, 2020). IPSOS said such a gap in awareness suggested that some people had failed to understand that the two measures were equally crucial in breaking the chain of COVID-19 transmission.

Nowadays, Indonesia’s testing rate currently stands around 2.2 tests per 1,000 people from April 4 to 10, 2022 (Jakarta Post, 2022). This number fell drastically compared with mid-February when the government was able to test around 8 people per 1,000 population per week (Jakarta Post, 2022). Given that, the Indonesian government must initiate a campaign advocating the importance of the 3T procedures using digital technology. Indonesian

government needs to make full use of digital technology to handle COVID-19 pandemic and address a wide range of pandemic-related issues. COVID-19 pandemic challenges Indonesian government and people to use digital technology to respond the crisis and, increasingly, is requiring government to adopt an open government approach and to use digital communication channels to provide reliable information on global and national COVID-19 developments (UN, 2020).

2 RESEARCH METHODS

In order to satisfy the objectives of the research, qualitative research in descriptive manner was held. This method offers a complete description and analysis of the research subject. By definition, qualitative research is an inquiry process of understanding social or human problem, based on building a complex, holistic picture, formed with words (Creswell, 2014). It is an approach for exploring and understanding the meaning individuals or groups ascribe to a social problem. This method is primarily exploratory and chosen to uncover trends in thoughts, opinions, and events, as well as to dive deeper into the problem. Thus, the scope of the study is guided by the following research questions: How is regional development disparities in Indonesia related to the use of digital technology in 3T policy to address COVID-19 pandemic? What are the challenges in the implementation of 3T policy in Indonesia?

3 THEORETICAL FRAMEWORK

The Theory of Planned Behaviour (TPB) started as the Theory of Reasoned Action in 1980 to predict an individual's intention to engage in a behaviour at a specific time and place. The theory was intended to explain all behaviours over which people have the ability to exert self-control (LaMorte, 2019). The key component to this model is behavioural intent; behavioural intentions are influenced by the attitude about the likelihood that the behaviour will have the expected outcome and the subjective evaluation of the risks and benefits of that outcome. LaMorte (2019) also stated that behavioural achievement depends on both motivation (intention) and ability (behavioural control). The TPB is comprised of six constructs that collectively represent a person's actual control over the behaviour (LaMorte, 2019), such as: attitudes,

behavioural, subjective norms, social norms, perceived power, and perceived behavioural control.

In addition to TPB, the use of digital technology also becomes one of the main strategies to be analysed in this writing. According to Rippa and Secundo (2019), digital technology is divided into three parts, namely Digital Artifact, Digital Platform, and Digital Infrastructure. Digital artifacts are components of digital technology, applications, or content that offer certain functions and values to their users. Digital platform is an environment in which a piece of software is executed, while digital infrastructure brings together and interconnects physical and virtual technologies such as compute, storage, network, and applications. Together these three components create a friendly environment for digital technology to improve and provide the digital experience for the users. When digital technology is provided, work can be done in a transformational approach that enables related stakeholders to work more effectively, collaboratively, and productively beyond the confines of physical space.

Before discussing further into people's action during COVID-19 pandemic and the way digital technology helps in reducing the spread of the virus, one must first take into account the perspective of regional economics. In regional economics, there are two classes of models that possess very different policy implications for dealing with regional inequality (Kim, 2008). The role of government involvement is relatively limited to infrastructural investments that affect the mobility of goods, labours, and other factors. The potential role for government intervention is significantly higher in the so-called "new models of economic geography" based on imperfect competition and increasing returns (Kim, 2008). First, due to the potential for "cumulative causation" forces, small subsidies can potentially have significant first-order effects. Second, infrastructural investments that increase the mobility of goods, labours, and capital may have significant impact on spatial inequality due to the self-enforcing nature of increasing returns. Third, since the equilibrium market allocations are inefficient in these models, markets will not reach the optimal level of spatial inequality without government intervention (Krugman and Venables, 1995; Puga, 1999). Murata (2002) then shows that the level of regional inequality may be constrained by consumer expenditure patterns. Regional inequality generally arises as an economy shifts from agriculture to manufacturing, but the degree of shift may depend on the rapidity by which consumers increase their expenditure shares in manufacturing.

4 RESULTS AND DISCUSSION

4.1 Regional Development Disparities in Indonesia

Inequality issues have always been a problem to Indonesia's development. Many efforts are taken, yet the problem remains. These development disparities are evident not only in physical and infrastructure, but also in human resource development. Physical infrastructure refers to several kinds of infrastructure such as transportation, telecommunications, and electricity, directly affects economic growth (Torrise, 2009), while human resource development includes access and opportunities to education, training, and new skills to improve one's ability. Many findings then conclude that physical and social (education) infrastructure contributes to inequality increases in Indonesia though not robustly significant (Nurdina, 2021).

The dynamics of Indonesia's development shows disparities between Java and other islands outside Java. Disparities can also be further seen between the Western Region of Indonesia and the Eastern Region of Indonesia. Developments between regions show that regions in Java generally experience much faster economic development than other regions outside Java. This brings different opportunities for the people and causes different challenges for the government to address. Therefore, to address this issue, the Indonesian government has tried to accelerate the infrastructure development in areas that are lacking. The government also stated that the current national development priorities focus on efforts to develop regions to reduce gaps and ensure equity.

The impact of inequality in development in Indonesia may vary, but mostly it causes the occurrence of inequality in various sectors such as inequality in employment, public facilities, and education. In addition to that, the access to internet is also a part of public facilities that is not available in regions whose infrastructure development is lacking. The limited, or in some cases the absence of, internet access brings about impact to many dimensions of people's lives during COVID-19 pandemic. Not only for the purpose of 3T policy during COVID-19 pandemic, people tend to do many things online. The absence of internet infrastructure creates another challenge. For the government, it becomes difficult to implement 3T policy in the said regions. For the people, it becomes difficult to access education and connect with other family members.

Addressing this problem from the perspective of regional economic theory will eventually bring the discussion to two approaches, they are: the role of government involvement and infrastructure investment. To invest in internet infrastructure in regions outside Java and Bali is not attractive for investors, both local and foreign investors (Indonesia Investment, 2017). This is because the level of investment attractiveness mainly relates to the basic manufacturing facilities in Indonesia. For example, if electricity supply is uncertain or transportation costs are very high, then the investors will not get maximum profit gain. Therefore, internet investment in regions outside Java and Bali are very limited to investment made by the State-Owned Enterprises (Badan Usaha Milik Negara--BUMN).

The potential role for government intervention is significantly higher in these regions. It needs to be done because the government's investment can increase the mobility of goods, labours, and capital which later in time may have significant impacts on reducing the development disparities. due to the self-enforcing nature of increasing returns. The government, through the State-Owned Enterprises, must be the agent of change that brings about better and more sustainable development in those regions.

4.2 Challenges in the Implementation of 3T Policy

The implementation of 3T policy surveillance by the Indonesian government becomes a serious challenge for the government, as the pandemic finally lasts for more than a year, Indonesia's testing capabilities as an early stage of surveillance is still not satisfactory. Nowadays, Indonesia's testing rate currently stands around 2.2 tests per 1,000 people from April 4 to 10, 2022 (Jakarta Post, 2022). This number fell drastically compared with mid-February when the government was able to test around 8 people per 1,000 population per week (Jakarta Post, 2022).

The low implementation of 3T policy in handling COVID-19 is due to infrastructure disparities, specifically the information and communication technology disparities. The Information and Communication Technologies (ICTs) development in Indonesia is expanding with internet penetration rate reported to have reached 47.69% or over 126 million internet users as of 2019 (Indonesia Central Bureau of Statistics, 2020). With this data, the ICTs in Indonesia has the opportunity to improve the development, as well as handling the COVID-19 pandemic. But, the ICTs infrastructure readiness in Indonesia especially those outside Java and Bali

Island was still unavailable to deliver network service.

For example, in Papua region there were 90% of regencies and cities whose villages were covered by lower than 50% mobile network (Faizah et al, 2021). With the limited access to the infrastructure, the actual use of ICT in Papua region was bound to be lower compared to Java and Bali regions. This information and communication disparities effect the implementation of 3T policy in several regions in Indonesia.

In handling COVID-19 pandemic, ICTs is an excellent means to deliver information quickly and contact tracing to stop COVID-19 transmission. For example, in South Korea advanced ICTs was used to gather data related to personal movement including phone location data, CCTV images, and details of use of cash cards, ATMs, and credit cards (ADB, 2021). In addition, the movement of confirmed cases is automatically displayed on the map and provided to epidemiological investigators so they can be used to find close contact. In Indonesia, the use of ICTs can be seen on “PeduliLindungi” application to track the movement, vaccination status, and enter public space. But this application faces its own challenges when this application is considered discriminatory because many people do not have a smart phone or internet data so they cannot access this application.

Indonesian government has set digital transformation as one of the key objectives in the Medium-Term National Development Plan (RPJMN) 2020-2024. Thus, Indonesia government continues to improve their ICTs capability in handling COVID-19 pandemic. For example, nowadays people with COVID-19 who already take the PCR test and get positive results will be automatically be given the medicine from the government. However, the implementation of 3T policy in Indonesia also faces lack of coordination among ministries. A study conducted by Gadjah Mada University has shown that a lack of coordination in the government has exacerbated the impact of COVID-19 handling in Indonesia. Moreover, the government officials had regularly given contradictory statements about the pandemic. For example, in early 2021, the government prohibited traditional Eid al-Fitr homecoming, but at the same time the Indonesian Ministry of Tourism and the Creative Economy began reopening tourism destinations. To enhance the implementation of 3T policy using ICTs, government-coordinated efforts must be improved.

Furthermore, human resource inequality that occur in regions in Indonesia, particularly in eastern Indonesia and frontier, outermost and least developed

regions often referred to as 3T (terdepan, terluar, tertinggal) regions make 3T policy implementation difficult. These human resources inequality is also the result of infrastructure inequality so that access to education and health is limited. Health inequities create disparities in health status between different groups of population. COVID-19 pandemic highlights the pre-existing health inequities and affects disproportionate health risk to the most vulnerable groups of population. COVID-19 pandemic will also affect on the increasing inequality in Indonesia.

This condition is exacerbated by the people's indiscipline in implementing health protocols and 3T policy. COVID-19 forces all people's behaviour to change according to the crisis they are facing. In this context, Indonesia follows public health recommendations and reinforced health behaviours such as handwashing, wearing mask, and limitation of social contacts to prevent the virus from further spreading. Behavioural changes as a response to these public health recommendations are heavily dependent on the acquisition of new social norms of interaction (Wollast et al, 2021).

The Theory of Planned Behaviour (TPB) concludes that health behaviours can be predicted by intentions to perform them. Intentions refer to the deliberate will to perform a behaviour before applying it. These intentions, in turn, are affected a) by attitudes toward the behaviour and whether people think it is useful, important or desirable, b) by the social norms they perceive to be prevailing around them, and c) by the control that people perceive they have over their actions (Wollast et al, 2021). Thus, the TPB holds that attitudes, social norms and perceived control influence behaviour indirectly through intentions, such that intentions are the direct precursor of behaviour. Furthermore, perceived behavioural control is hypothesized to affect behaviour indirectly but also directly.

People who have strong sense of control approach difficult goals, have a strong commitment to their goals, maintain a task focus, persist in the face of failure, and attribute failure to a lack of effort. Therefore, people's ability to perform a behaviour is likely to facilitate behavioural performance. Intentions, attitudes, social norms and the perceived control to apply handwashing will be greater than for limitation of social contacts, as the latter is characterized as an avoidant and unnatural behaviour, that is more difficult to perform. Indonesia health behaviour can be seen from the high cases of COVID-19, while the government implements the social

distancing policy. People's behaviour becomes a key role to tackle COVID-19 pandemic in Indonesia.

4.3 Harnessing Digital Technology in 3T Policy to Address COVID-19 Pandemic

Social distancing policy which is being implemented by the Indonesian government effects the Indonesian people to rely on the internet for information related to COVID-19, hence the Indonesian government is being urged to deploy effective digital technology to address the pandemic. Indonesian government itself had posted some information related to COVID-19 on COVID-19 Task Force website and social media that can be accessed by the Indonesian people. Indonesian government information has focused on information about the outbreak (including statistics of the total number of cases and fatalities), travel restrictions, practical guidance on protection, and governmental response. Indonesia government also designed an app, namely "PeduliLindungi".

Some countries, such as South Korea, balancing health imperatives and privacy concerns, have found that digital applications can help trace and test people who have come into contact with an infected person. However, in Indonesia, the use of digital technology in Indonesia for handling COVID-19 is still faced with various obstacles. It is because many regions in Indonesia do not have the capability of both infrastructure and human resources to use digital technology because of the underdevelopment problems, especially in those frontier, outermost and least developed regions often referred to as 3T (terdepan, terluar, tertinggal) regions.

Digital health technology solutions can be used for people screening, tracking the infection, prioritizing the use and allocation of resources, and designing targeted responses. WHO's Department of Digital Health and Innovation stated that countries to be well prepared to digitally detect, protect, respond, and prepare the recovery for COVID-19. Examining the technology and related systems that are helpful in the disease identification, limiting disease spread, and disease prevention is of paramount importance. Different new age technologies can be adopted by the government as an initial response strategy. This chapter mainly focuses on the use of the Internet of Things (IoT), Internet of Medical Things (IoMT), and other smart emerging technologies like drones, robots, autonomous vehicles (AVs), Bluetooth, and global positioning system (GPS), which can be helpful in handling this pandemic (Saher and Anjum, 2021).

IoT is a promising technology of interconnected computing devices, transmitting data over the network without any human intervention. In the recent times, IoMT has captivated major attention from the field of healthcare. It is a blend of medical devices and software applications connected to healthcare IT systems. In the current critical scenario of COVID-19, the most significant issue after the development of vaccine is an efficient way of reachability to the patients. This can be best done by using the concept of IoT (Saher and Anjum, 2021).

Drones, robots, and AVs technology do not only ensure minimum human interaction but also can be beneficial to access contagious COVID-19 patients. Wearables, making use of the Bluetooth and GPS technology, is another efficient way to monitor individual's health and their day-to-day stress levels in isolation. Altogether, these technologies can add a consequential share in the new paradigm of Tele Medicine, either for prevention of disease or identification and monitoring of the masses, paramedical staff, symptomatic, and asymptomatic COVID positives during the pandemic (Saher and Anjum, 2021).

In implementing 3T policy, digital technology plays a major role to make this policy work effectively. For tracking of people, digital technology has helped facilitate COVID-19 preparedness, so the spread of infection can be reduced. Tools such as maps, mobile phones, mobile payment application, and social media are capable to collect real-time data on the location of people. For example, Chinese government uses this technology to track the movement of people who had visited the Wuhan market, the pandemic's epicenter.

For contact tracing and testing, tools such as security camera footage, facial recognition technology, bank records, and GPS data from vehicles and mobile phones can provide real-time data and detailed timelines of people's movement. This strategy is used by South Korea government, and the government will send its people emergency text alert about new COVID-19 cases in their region and people who could have been in contact with infected people. After that, they will instruct the people to report for testing and self-isolate. By using this strategy, South Korea has maintained among the lowest per-capita mortality in the world (The New York Times, 2020). In Singapore, people have their temperature measured at the entries of workplaces, schools, and public transport. The data from the thermometers is tracked and used to identify emerging hot spots and clusters of infection where testing could be initiated.

For treatment, digital technology can be used to send medicine to people infected with COVID-19. In Indonesia, people with COVID-19 who already took the PCR test will be recorded in “PeduliLindungi” application. Based on the test result, the infected individuals will automatically receive the medicine for free. But, this application has its weakness because this application is not connected to Integrated Social Welfare Data (Data Terpadu Kesejahteraan Sosial-DTKS). If it is connected to the Integrated Social Welfare Data, the people who live under poverty lines and affected by COVID-19 will also receive food and cash transfer provided by the government. Hence, when lives becomes more challenging due to COVID-19 for the people who live under poverty lines, there will not be any social unrest and political instability because the government is present and provided supports for its people.

5 CONCLUSIONS

Developments between regions show that regions in Java generally experience much faster economic development than other regions outside Java. This brings about different opportunities for the people and causes different challenges for the government to address. The impact of inequality in development in Indonesia vary, but mostly it causes the occurrence of inequality in various sectors such as inequality in employment, public facilities, and education. In addition to that, the access to internet is also a part of public facilities that is not available in regions whose infrastructure development is lacking. The limited, or in some cases the absence of, internet access brings about impact to many dimensions of people’s lives during COVID-19 pandemic. Not only for the purpose of 3T policy during COVID-19 pandemic, people tend to do many things online. The absence of internet infrastructure creates another challenge. For the government, it becomes difficult to implement 3T policy in the said regions. For the people, it becomes difficult to access education and connect with other family members.

COVID-19 pandemics also change people’s behaviour. They are expected to implement health protocols to minimize the spread of the virus. People’s behaviour becomes a key role to tackle COVID-19 pandemic in Indonesia. Indonesia health behaviour can be seen from the high cases of COVID-19, while the government implements the social distancing policy. Therefore, people’s ability to perform a behaviour is likely to facilitate behavioural performance. Intentions, attitudes, social norms, and

the perceived control to apply handwashing will be greater than for limitation of social contacts, as the latter is characterized as an avoidant and unnatural behaviour, that is more difficult to perform.

Other than that, the integration of digital technology into pandemic policy and response could be one of several characteristic features of countries that have flattened their COVID-19 incidence curves and maintained low mortality rates. The lesson learned from other countries who use digital technology is that countries that have quickly deployed digital technologies to facilitate planning, surveillance, testing, contact tracing, quarantine, and clinical management have remained front-runners in managing disease burden.

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