

Re-Adaptation of COVID-19 Impact for Sustainable Improvement of Indonesian Villages' Social Resilience in the Digital Era



Lala M. Kolopaking^{1*}, Eko Wahyono², Nyi R. Irmayani², Habibullah Habibullah², Rudy G. Erwinsyah²

¹ Study Program Post Graduated in Rural Sociology, IPB University Dramaga Campus, Bogor 16680, Indonesia

² National Research and Innovation Agency, Gedung Sasana Widya Sarwono Lantai 6 Jl. Jenderal Gatot Subroto No. 10, DKI Jakarta 12710, Indonesia

Corresponding Author Email: lalako@apps.ipb.ac.id

<https://doi.org/10.18280/ijstdp.170713>

ABSTRACT

Received: 17 June 2022

Accepted: 14 September 2022

Keywords:

digital era, re-adaptation, social protection and security, sustainable village social resilient

The policy article aims to formulate a re-adaptation to the impact of COVID-19 that strengthens the social resilience of villages in a sustainable manner based on empirical findings. This article uses a sequential mixed model research design approach analysis with focus group discussion, and it is strengthened by data collected from 105 respondents chosen through random sampling techniques, online in-depth interviews, and group interviews in the villages where the article was conducted. The result showed that the village government was able to build a dialogue with villagers to find common understanding and build collective action to overcome the impact of COVID-19. Another finding is that the village government can realize real action in synergizing social protection policies from the government with the development of social security in rural communities. It was concluded that the experience of overcoming the impact of COVID-19 should be used as an innovation in the development mechanism of village governments in Indonesia. The innovation described in this article is known as re-adaptation. Disaster adaptation is designed and included in the village government's development planning mechanism document. The article has limitations because it does not examine existing regulations that could be used to expand innovative practices.

1. INTRODUCTION

Community life in Indonesia is affected by disasters. The Disaster Risk Index shows that 19 of the 34 provinces (55.9%) are categorized as high disaster risk areas, and the remaining 15 provinces are moderate risk. No provinces are at low risk of disaster [1]. Rural areas have high social vulnerability and are most affected by natural disasters. However, in the context of COVID-19 as a source of disaster, the community is unprepared because the disaster differs from natural disasters.

The impact of COVID-19 is greater than the impact of natural disasters. The impact was felt in the city but not in the village. The development of village life in China was negatively impacted by COVID-19 [2]. The lives of villagers in the United States of America were also negatively impacted. The economic prospects of the community are worse because of this process [3].

Village communities are critical to disaster recovery [4]. Village communities in Indonesia have a long history of dealing with natural disasters; as a result, they have social resilience to deal with disasters. The village community retains a strong sense of social solidarity [5, 6]. Similarly, villages in China were discovered to be united in facing disasters [7]. A study found that local culture in rural China can be used as a basis for overcoming the COVID-19 epidemic as digital technology advances [8]. There are signs of adaptation being made by village communities that can increase social resilience due to the success of building internet-based connectivity with various parties in facing disasters [9].

Paying attention to villages in Indonesia in the face of COVID-19 is an important step. There are two questions in this regard: (1) How does the public recognize the procedures carried out in strengthening social resilience in the face of the COVID-19 epidemic as the village in the era of internet intervention? (2) How can the village government's expertise with these processes be used as a long-term endeavour in line with the village government's development management mechanism? Using emic research methods [10, 11], the findings of an ethical study on disaster adaptation in rural communities were strengthened. Research that listens to community and village voices about their experiences dealing with disasters, particularly the COVID-19.

The findings of two research questions were used to develop policy recommendations for the agency to develop new adaptations that are more systematic and build social resilience. The process is referred to as "re-adapting" to the COVID-19 outbreak. This is the focus of the study. The village is entering the digital era because of the re-adaptation concept. The adapted are technologically savvy. The process is inextricably linked to the village mechanism for managing sustainable development.

2. LITERATURE REVIEW

2.1 Re-adaptation concept

The concept of re-adaptation distinguishes between

different types of adaptation. To survive in a changing environment, humans are constantly adjusting their goals [12-14]. Re-adaptation is an attempt to unite and integrate the re-assembly process undertaken by individuals or societies in response to a social or natural shock [15, 16]. Re-adaptation and pat are viewed as efforts by individuals and groups to adapt to changing environmental and social conditions while also strengthening social efficiency in a sustainable manner.

Re-adaptation contributes to the concept of ecological modernity. Martin Janicke and Joseph Huber proposed the idea in the 1980s, and Arthur Mol and Gert Spaargaren have been working on it as a social theory since then. Re-adaptation is defined as the use of science and technology to overcome changes caused by development that harm the environment as well as social and economic situations [17-20]. The re-adaptation approach includes mechanisms to improve individual control until the community is threatened by disaster, as well as control based on state regulations or policies.

Climate change is understood through the lens of re-adaptation. Climate change adaptation and mitigation actions are linked to increased adaptation to maintain sustainable development and living [21-23]. Adaptation planning is the process of preparing for the effects of climate change, which includes actions taken to mitigate the negative effects of climate change or to capitalize on emerging opportunities.

The threat of climate change is to recognize the risks that drive natural disasters, which can then be followed by social disasters such as conflicts or riots, which disrupt people's social order. According to Brooks [24], adaptation to climate change should include steps like development efforts, such as raising awareness and mutual understanding; mobilizing resources; increasing adaptation capacity; establishing programmatic implementation and action targets; measuring, evaluating, and sharing experiences. Climate change management cannot be based solely on the adaptation process.

The concept of re-adaptation is inextricably linked to the concept of social resilience [25, 26]. Strong solidarity in villages preserves the value of togetherness [27, 28]. Local wisdom is a component of social interaction that shapes and binds communities.

Local wisdom is a component of social interaction that shapes and binds community units [29]. Local wisdom is still alive in the form of inherent values, norms, and behaviours that serve as guidelines for village community life. The local wisdom of the community determines the strength of the village's social resilience. The concept of re-adaptation cannot be separated from the characteristics of solidarity and local wisdom that are still known and alive as community norms in strengthening the social resilience of village organizations [30, 31].

Informal initiatives that increase rural communities' social resilience in the face of COVID-19 are thought to be part of the re-adaptation process. The process evolved from the macro level, defined by official institution policies, to the micro level, which included village community initiatives to overcome the outbreak's impact. This resulted in a pattern of social resilience that was common in the creation and growth of Indonesian villages.

2.2 Social resilience of villages in the digital era

The position of villages in Indonesia has become a government institution since the enactment of Law No. 6 of

2014. The government is required by law [32] to manage development independently. According to the law, villages are required to design development mechanisms based on five-year and annual development plans. The village receives a state development budget. One way that the village can deal with vulnerability in development at the local level is to strengthen adaptation capacity, which increases village-scale social resilience. The village government can promote good governance and transparent bureaucracy. The village can initiate re-adaptation to increase social resilience to manage development. The development of network governance and multi-level governance can be accomplished by following government bureaucratic procedures [33-35]. Villages in Indonesia can now rally multi-party cooperation to strengthen social cohesion.

In the context of institutional reinforcement to strengthen the capacity for adaptation to social disasters, social resilience is an important process to understand [36]. The process is determined by the ability to organize collective action [37]. Learning, tracking renewal and innovation, and re-organization are all components of achieving a long-term social, economic, political, and resource state. Adaptation for disaster survival and recovery [38]. The ability to recover from setbacks and changes is defined as social resilience. Individuals, families, and communities can all contribute to the social capacity to overcome and adapt to threats, and even make new living conditions more sustainable [39, 40].

The level of progress was found to be related to a community's social resilience. The higher the index of village independence, the higher the index of village resilience. This strengthens village communities that have advanced but lack a structure to ensure the welfare of their fellow villagers. The village knows how to care for its residents so that they do not face social problems. The purpose of social security is to combat poverty, provide social assistance, and promote social sodality [41, 42]. The central theme of this case is that everyone works together in the spirit of the soul to help other villagers. The concept of the village as a government institution includes the concept of social protection as a state initiative to protect villagers from being exposed to and/or escaping from social problems. Government programs fund activities such as social assistance, economic assistance, and encouraging policies designed, established, and implemented to assist low-income communities.

COVID-19-affected villages may be eligible for government-sponsored social assistance programs. However, the process can coexist with community-led social security expansion. Another factor to consider is the evolution of the epidemic, as well as the increasing importance of internet intervention in Hamlet. Indonesia's internet users are expected to reach 202.6 million by 2021, accounting for 74.4% of the country's 277.7 million people. The number of internet users in rural areas has also increased in the last five years. This relates to the development of internet network infrastructure as well as the establishment of a government-sponsored Digital Village development program [43]. There are signs of progress in social protection, and social security initiatives have used digital technologies to reach people more quickly and effectively [44].

Social media and digital technologies, according to Rice et al. [45], play an important role in identifying social health issues. The community can quickly gather and act on information. Indeed, social media has been found to be quite beneficial in boosting the social resilience of riverbank

villages in the process of re-adapting to flood disasters. The role of digital technology in the face of COVID-19 has increased because of government-issued health guidelines, affecting the structure of social ties in the community. Because of changes in individual transactions, the digital economy is expanding. Online communication facilitates the exchange of goods from village to city, as well as payments to visit tourist attractions in the village. Social interaction becomes dependent on mobility settings when using digital applications to monitor one's own health [46]. As the digital era ushers in internet intervention into the village, re-adaptation is required to strengthen village resilience. Consider the social and economic impact of digital technology.

2.3 Theoretical framework: Contextual village-based re-adaptation

The COVID-19 is causing a social disaster in the village because of global socioeconomic shocks. Disasters like this have occurred in villages when the world is experiencing financial difficulties. The government prepares the economic crisis protocol management framework in the hope that the problems that arise will not cause chaos and social chaos. When the spread of COVID-19 transmission became a crisis, the government developed a crisis management protocol. Villages are vulnerable to the issue of sustainability because they lack social resilience in the face of external social shocks [47].

The government initiated and continued to develop the process of developing health protocols on a national scale. The media reports on COVID-19 prevention procedures. The number of people who recover from infection-related illnesses and the number of people who die from them is reported every day. The news is sorted through data at the regional or provincial level. Health protocols are disseminated through the media and social media. COVID-19 control procedures are quickly spreading. The government promotes infection prevention through clean and healthy behaviour. The media and social medicine continue to educate on the mechanisms of healing and the importance of vaccination. With this step, communities and villages affected by COVID-19 are forced to adhere to health protocols developed and centralized by the government. The community began to complain about how the outbreak was handled because it limited people's interaction and mobility, which had a negative impact on the community's economy [48].

Villages' vulnerability to COVID-19 is determined by their relationship with the "outside world of villages." The stronger the bond, the more vulnerable the villages become to COVID-19. Villages in these conditions are in a predicament. They keep their citizens relatively healthy by limiting their interactions with the city. However, this reduces business activity and disrupts the village's economic development. These two options continue to be difficult for the village and its residents [49-51].

Despite the impact of COVID-19, village communities in Indonesia are responding to various global development initiatives. "Villages are encouraged to strengthen their development management mechanisms [52] in response to the rapid development of digital technology". The Indonesian government has proposed developing a sustainable development goal for the village development program [53]. The village is surviving because it has a resourceful village government apparatus capable of surviving and recovering

from a crisis during an outbreak. In the future, villages will face both opportunities and challenges in managing sustainable development [54].

To increase the village's social resilience, the community and village must improve their re-adaptation capacity. The internet can be used to facilitate communication among parties so that action can be taken. The village can synergize the implementation of government social protection policy programs in dealing with COVID-19 with village-developed social security development actions. The digital technology-enabled collaboration of communities, local governments, and other stakeholders revitalizes local culture [55]. Villages in Indonesia can continue to develop disaster re-adaptation mechanisms.

3. METHODOLOGY

The article is a policy study with the goal of achieving re-adaptation and a socially resilient village in relation to dealing with COVID-19 in the digital era. A sequential mixed model research design approach was used in this study [56-58]. Figure 1 shows a flow chart of research activities.

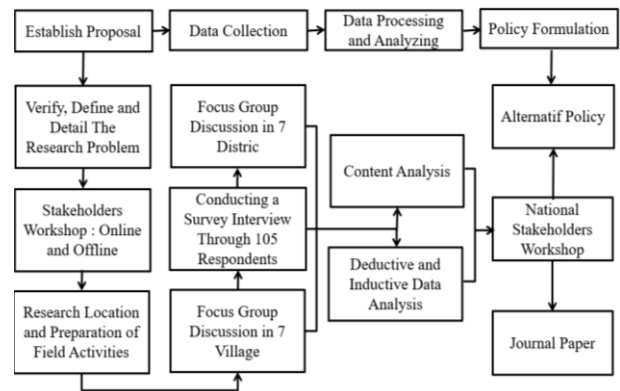


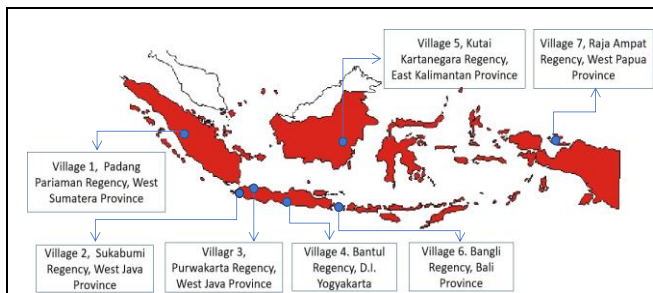
Figure 1. Research activity flow chart

The case study was chosen to investigate the peculiarities of strengthening the unique community at the research site [58, 59]. A literature review was conducted to investigate concepts and indicators of social resilience. Focus group discussions, surveys for respondent interviews, and offline-online group interviews were used to gather empirical data. A focus group discussion was held with ten informants from the government, academia, and a local media agency. Other people were interviewed to provide information about the conditions, potentials, problems, and solutions in the selected regencies and villages. This study included 105 respondents selected through accidental sampling techniques. Each research village selects 15 respondents from among village officials, community leaders, religious leaders, customary leaders, women's and youth leaders, and village social facilitators.

Data was collected in seven villages in the following provinces: Padang Pariaman Regency, West Sumatra Province; Sukabumi Regency, West Java Province; Purwakarta Regency, West Java Province; and Bantul Regency, Special Region of Yogyakarta Province. Figure 2 shows the distribution of research ocations.

NVivo software was used to process data from in-depth interviews, online group interviews, and focus groups. Spearman Test Rank Correlation is used to examine the relationship between variables. Pairwise comparisons with

software expert choice were used to determine the interrelationships and interdependencies between a series of development program cycles. The data was double-checked and confirmed in accordance with the research questions. The data from the two data collection methods is combined and interpreted to provide information on the concepts and indicators of socially resilient villages.



Description:

Village 1	Village 2	Village 3	Village 4	Village 5	Village 6	Village 7
• Nagari Sunua Barat	• North Nagrak Village	• Cibodas Village	• Parangtritis Village	• Loa Lepu Village	• New Banjar Village	• Yenuba Village

Figure 2. Location of 7 villages as research locations

4. RESULT AND DISCUSSION

Disaster response strategies tailored to local resources have been developed by communities in seven research villages. Residents in these villages are proud of their social resilience in the face of changing ecological conditions and economic-social development. They are a formidable force in COVID-19.

Village officials agreed to use the concept of re-adaptation to overcome COVID-19. The implications of adhering to the government's centralized rules on health standards are perceived. The villagers are familiar with the 5 M slogan in the face of the COVID-19. Washing hands, wearing masks, keeping a safe distance when interacting, avoiding crowds, and limiting movement are all new practices introduced in these settlements. The circumstances give rise to social and economic concerns. The direct link between villages and their families working and living in the city is hampered. The attempt to purchase village items from city business partners was a struggle. This issue, however, can be solved by using mobile phones to communicate.

According to informant interviews, the year of the COVID-19 epidemic influenced the flow of villages returning from the city due to job losses when their employer went bankrupt. This places financial and psychological strain on the community's families. In addition to being unable to attend school, children are forced to study at home, imposing new social constraints on families and communities. Several other studies have produced similar results [60]. Nonetheless, the villagers appeared to find a solution to their problems in the end.

The findings of seven focus group discussions held in villages and regencies show that villagers strengthened social resilience procedures to overcome COVID-19. This research village accomplishes five important goals: (1) it enables communities to identify and protect vulnerable families and those affected by problems; (2) it encourages increased community participation in village policymaking; (3) it strengthens village communities' capacity to prevent and

manage social conflicts; and (4) it encourages communities to maintain local wisdom or traditional institutions to manage social solidarity and preservation (particularly social media). See Table 1. The ranking of important words found in the NVivo platform supported the findings of FGD activities. Local wisdom, social participation, social conflict management, synergy, and digital connection are some of the words that are frequently mentioned (Figure 3).

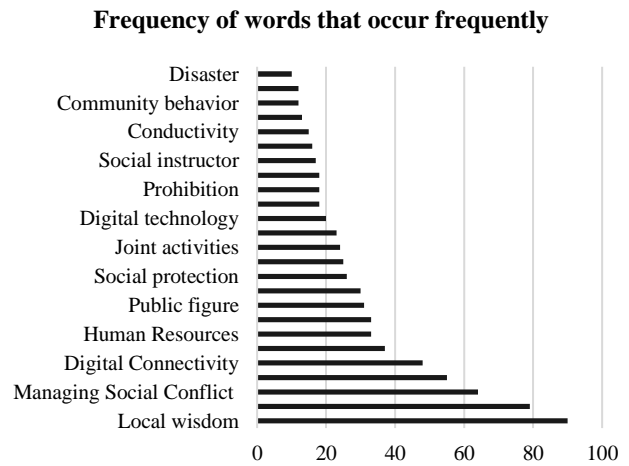


Figure 3. The most frequently used words by 105 respondents when dealing with COVID-19, 2021

The village community's social security mechanism is more important than the government's role in overcoming COVID-19. There are symptoms in the village that reinforce the global trend [61]. It should be mentioned in the context of the five things based on the success of building a common understanding. There are two crucial processes. First, it encouraged village communities to participate in the development of appropriate data as the foundation for the establishment of vulnerable families. The procedure is used to discuss the differences in villagers' understanding of COVID-19. Second, efforts to preserve local wisdom or customary institutions to manage social solidarity and preserve natural resources are among the processes discovered. Communities and villages have not done well in using social media to assist one another. The procedure encourages more effective use of internet intervention. Other findings from 105 respondents indicated that re-adaptation to the impact of COVID-19 was an important step. The importance of making adaptations to strengthen village resilience in the face of disasters caused by the COVID-19 pandemic was rated by 88.6% of respondents. Table 2 shows important assessment variations in each village.

The findings about the processes carried out by communities and villages as described above strengthen communities and villages' ability to re-adapt. The adaptations carried out contain the characteristics planned and structured to deal with changes caused by COVID-19. According to interviews with village informants, a process of synergizing between the health protocol and the government in the face of the outbreak has been created to protect and support villagers from being exposed to or out of social problems.

The process of dealing with COVID-19 as a re-adaptation can develop because of using internet network access and social media. The presence of figurative villages on the islands of Java and Bali lends credence to the conclusion [61-63]. The role of social media is related to the level of access to the

internet network. According to almost all government figures in the research village, communication via social media has become an alternative to strengthening re-adaptation. This dialogue, which can span time and space, is felt by the village

to accelerate the process of persuading villagers to strengthen the synergy between government initiatives through the village government and steps to carry out social security efforts that have developed in their lives.

Table 1. FGD results in dealing with the COVID-19, 2021

Research Location	FGD Results in Dealing with the Covid-19	
	Village Level	Regency Level
Nagari Sunua Barat (West Sumatra)	<ul style="list-style-type: none"> Local customs and culture preserved to maintain a sense of community. Optimising tribe variety to generate solutions to social issues. Social potential and conflicts handled by governance. Social media can be used to communicate with citizens. 	<ul style="list-style-type: none"> Public health empowerment by diversity of local commodity. Keeping and applying artistic values. Encourage citizens to participate in environmental damage prevention and disaster preparedness.
Nagrak Utara (West Java)	<ul style="list-style-type: none"> Get involved in gotong-royong activities to foster mutual care and gratitude. Social media can be used to communicate between people and organizations. Encourage the active participation of villagers in the village. 	<ul style="list-style-type: none"> Increase community participation to identify village potential. Strengthen social security measures and combat youth unemployment by improving the capabilities of newly established independent businesses. Maintaining conditions that prevent citizens from involved in conflict. Increasing community awareness of charity and aims to strengthen village finances.
Cibodas (West Java)	<ul style="list-style-type: none"> Maintaining gotong-royong activities to strengthen unity by respecting diversity. Good mechanisms for distributing social assistance should be strengthened. 	<ul style="list-style-type: none"> Overcome social problems by utilizing potential natural and social resources, as well as government agency coordination and village empowerment. Maintaining success in forming village-level partnerships between organizations to address social concerns.
Parangtritis (D.I. Yogyakarta)	<ul style="list-style-type: none"> Preserve and improve local knowledge. Capable of providing jobs that generate enough revenue. Maintaining tolerance among varied communities to avoid village conflict. 	<ul style="list-style-type: none"> Maintaining and employing methods that have been successfully established in empowering village social institutions and local wisdom. Using the mechanism that was effectively developed in encouraging villagers' engagement in the use of natural resources for villagers' welfare.
Loa Lepu (East Kalimantan)	<ul style="list-style-type: none"> Village efforts are based on local values to maintain togetherness and help the less able. Increasing the synergy of activities among the government, private sector, and villages to maintain a clean and healthy environment. 	<ul style="list-style-type: none"> Maintaining the use of coordination mechanisms for development activities between government agencies. Encourage collaboration between government and private sector efforts to improve the social resilience of sustainable villages.
Banjar Baru (Bali)	<ul style="list-style-type: none"> Community participation develops harmony between citizens without differentiating between indigenous people and immigrants. The integrity mechanism between village government, government based on customary institutions, and governments ranging from villages to provinces to improve village welfare and social resilience is still in place. Solidarity between villagers can be strengthened by using social media. 	<ul style="list-style-type: none"> Utilizing cooperation mechanisms between the leadership of government figures and indigenous institutions in the village to maintain vulnerable groups and people with social problems Maintaining active participation of villagers in managing natural resources and customary-based social resources Anticipate social conflict or violence. Continuing building synergy between levels (villages, sub-districts, districts, and provinces) by utilizing digital technology.
Yenuba (West Papua)	<ul style="list-style-type: none"> Maintains traditional institutions and strengthens villagers' cooperation (gotong royong). Encourage ecotourism to boost the economy by encouraging activities that protect natural resources. Maintaining traditional practices for dealing with potential or social conflicts. Increasing the benefits of internet connectivity from central government infrastructure aid for economic purposes, particularly tourism development. 	<ul style="list-style-type: none"> Village leaders and indigenous figures can still direct villagers to protect and maintain vulnerable families. Maintaining active community participation Maintaining a good control mechanism against social problems and acts of violence to avoid a social conflict. Digital technology can be used to overcome social problems.
Conclusion	<ul style="list-style-type: none"> Communities should be able to identify and protect vulnerable families. Encourage greater community involvement in policymaking. Social conflicts can be prevented and managed by increasing the capacity of villages. Local wisdom or indigenous institutions should be encouraged to manage social solidarity and preserve natural resources. Digital applications should be used for productive purposes. 	

The social protection mechanism can supplement and strengthen the social security system of the village community. Group discussions in villages where the central and local governments directly mentioned the research to families affected by the outbreak were deemed extremely beneficial. It is required during the first wave of COVID-19. The community is shocked by the villages' restricted mobility. Those dealing with this issue are known as social workers, and they work in research villages. This assistance strengthens social security mechanisms developed by residents of one village or one common custom who have a lower income. The village community's social security mechanism strengthens the process. Existing beneficiary families who receive assistance from both mechanisms exhibit symptoms.

Handling health issues in the digital age is more than just providing material assistance. The provision of health information services to the community is being expanded [64]. The relationship between social protection and social security mechanisms supported by digital technology as a re-adaptation to COVID-19 must be balanced against non-material assistance. Figure 4 conceptually shows the relationship between the two mechanisms that were studied.

The social security mechanism is shown to be both non-digital and digital. The mechanism is driven by both the village community and other communities. The formation of citizen communication groups using conversation platforms has resulted in the beginning of this process in some villages. This group is used to develop product markets for family businesses affected by COVID 19. The Java research site is also known as a digital-based initiation application (kitabisa.com). It distributes aid from and to affected communities. The social protection mechanism recognizes non-digital mechanisms based on local values.

Social protection that emerges in response to the impact of COVID-19 tends to rely on government-developed programs. The mechanism is not digital in nature. On a non-digital basis,

the circle's area is larger than that of social protection. The International Policy Centre for Inclusive Growth in Indonesia [65] runs several programs, including the traditional Cash Transfer Program, Rice for the Prosperous Population, National Health Insurance Program, and Smart Indonesia Program. This mechanism will most likely be developed and implemented as a digital-based social protection mechanism [65-67].

The national level FGD recognizes the use of digital technology as a re-adaptation to improve the social resilience of villages facing the outbreak as giving new meaning to both social protection and social security measures. Aid distribution is carried out using digital technology. This system is well-known for providing material assistance. An important effort is being made to improve data on the spread of COVID-19 among villagers. In entering the digital era, the mechanism of social security and social protection formed the process of strengthening the typical village social presence in Indonesia. According to a series of online stakeholder discussions, the village's re-adaptation does not promote sustainable development.

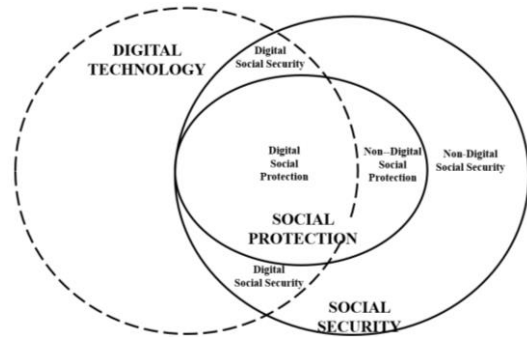


Figure 4. The re-adaptation concept of social security and social protection

Table 2. The importance of re-adaptation to strengthen village social resilience, 2021

Location Research	Number of Respondents	Percentage (%)	Village Social Resilience Based on the Digital Application Used
Nagari Sunua Barat (West Sumatra)	13/15	86.6	Re-adaptations strengthen communication and information patterns to develop locally and based on local wisdom to preserve participatory environmental damage.
Nagrak Utara (West Java)	12/15	80.0	Re-adaptation to demographic changes by empowering young people to become independent social entrepreneurs. Collaboration between mutually reinforcing parties also prevents social conflicts.
Cibodas (West Java)	14/15	93.3	Carry out activities to identify and protect vulnerable families through planned re-adaptation, with planning mechanisms that are cooperative in nature and seek solutions to village problems.
Parangtritis (D.I. Yogyakarta)	12/15	80.0	Implement changes to improve the village's human resources. The development of a village-based economy embraces communities, with an increase in human resources, can effectively increase tolerance, reduce conflicts, and improve community welfare.
Loa Lepu (East Kalimantan)	14/15	93.3	Implement changes that would strengthen the entire process and unite all parties in achieving large common goals while avoiding social conflicts.
Banjar Baru (Bali)	13/15	83.3	Re-adapt participatory mechanisms that can act as a bridge between local communities and migrants based on harmony and solidarity, thereby strengthening local economic development.
Yenuba (West Papua)	15/15	100.0	Changes must be made to create a global economic pattern that reinforces local cultural principles and traditions while also encouraging greater community involvement.
Conclusion	93/105	88.6	Re-adaptations are designed with active participation to strengthen the social resilience of productive communities through the optimal use of digital technology.

In addition to being important for re-adaptation in order to strengthen the village's social resilience (see Table 2), there was a need to be developed in order to overcome disaster impacts. It is shown that village officials, actively participating women and youth leaders, and social village facilitators believe that adaptation should be developed in the face of disasters such as the COVID pandemic (Table 3).

Table 3. Correlation of 105 respondents' characteristics with re-adaptation development need

Respondent Characteristic	Correlation Coefficient*	Correlation Relationship
Age (24-39 year's old)	0.868 (Very Strong)	Positively Correlated
Education > Senior High School	0.634 (Strong)	Positively Correlated
Income > US \$ 2 per day	0.436 (Moderate)	Positively Correlated
Village Officials	0.928 (Very Strong)	Positively Correlated
Social Village Facilitators	0.881 (Very Strong)	Positively Correlated
Women and Youth Leaders	0.898 (Very Strong)	Positively Correlated
Informal Leader (Teachers and Customary Leader)	0.749 (Strong)	Positively Correlated
Actively Participate in Handling the Impact of COVID-19	0.914 (Very Strong)	Positively Correlated

*Correlation is significant at the 0.01 level (2 tailed)

The village mechanism for managing re-adaptation in sustainable development requires processes at seven research sites across Indonesia. There are four cycles of re-adaptation to be included in the village program under building. This procedure is part of the village's development management system. According to the figure, the four cycles of the re-adaptation phase will be included in the village program to manage development in a sustainable manner. They must be prioritized in order to discover the interrelationships and interdependencies between a series of cycles and effectively implement them. The chosen priority is shown in Table 4 below, based on the results of the pairwise comparison method used with the expert network at the national level FGD. This cycle is a unified whole that binds each other to sustainability and is part of the program cycle of village mechanisms for sustainable resource management (Figure 5).

Phase 1 of the re-adaptation cycle follows the experience outlined in the 7-research site village where awareness and understanding of COVID-19 transmission control were carried out. The village government approached the villagers in community units to reintroduce the value of assistance to protect themselves and families who are socially vulnerable and affected by problems. The government disseminates information received by the village government and the community through communication with village leaders and social media. The villagers took action to stop the spread of COVID-19.

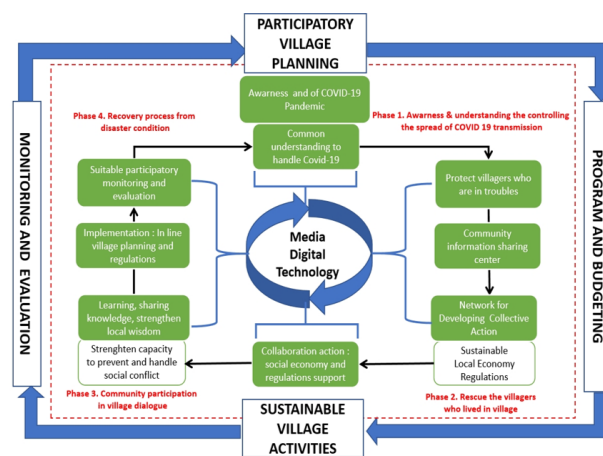
Phase 2 involves the rescue of villagers who live in the village. Rescue assistance is required for those who do not contract COVID-19 but face social problems because of the impact of health protocols on income. COVID-19 has a significant impact on economic and social life. Many of their businesses were destroyed. The scope of re-adaptation

attention includes not only the poor, but also families forced to survive due to the outbreak. Phase 2 refers to the rescue procedure. The identification of the affected family must be supported by accurate data to be consistent with actual conditions.

Residents or village communities participate in facilitation in Phase 3 in response to village government initiatives. The procedure must be carried out in a village. The village government creates multi-actor networks for developing collective actions based on a variety of information. Activities are developed because of a synergy between social protection initiatives and the community's ability to develop social security actions that protect fellow villagers from social problems. Villages are intended to reinforce traditional values by assisting individuals who are still involved in community traditions. In fact, the activities developed also refer to the long-term management of local resources, such as bolstering green small- and medium-sized businesses and environmentally friendly domestic industries. Then, at the provincial level, by granting official recognition to indigenous communities in the form of village and regional regulations.

Table 4. Cycles of re-adaptation priority

Cycles	Score	Phase Priority
Awareness and understanding of controlling the spread of COVID-19 transmission	0.416	I
Rescues for villagers who live in the village	0.275	II
Community participation in village dialogue	0.195	III
Recovery process from disaster conditions	0.114	IV



Description:
 → Village Mechanisms for Managing Sustainable Development
 ■■■■ Re-adapting Cycle overcoming the Impact of Covid-19

Figure 5. Re-Adaptation cycle stage of village development mechanism in dealing with COVID-19, 2021

The importance of governance collaboration among government agencies, villages, and rural business communities. This procedure will eliminate the possibility of conflict in the village. Because there are differences in how the villagers deal with the impact of the COVID-19 outbreak. Some people are not opposed to the government's ban. There are differences in the approval and handling of vaccinations. Differences in these perspectives can result in segregation

symptoms. It has the potential to cause social strife.

The discussion series concluded that re-adaptation in handling the COVID-19 at the village level should be used as a learning medium, sharing knowledge that strengthens indigenous values. Locals say the procedure boosts the village's social resilience. To strengthen the village's social resilience, Phase 4 should be used as a disaster recovery process. Because of the use of digital technology, the mechanisms of social security and protection within the community can synergize. Re-adaptation is linked to strengthening ethnic groups' identities in Indonesian state units. One way to achieve this is to maintain pluralism and unity within a single national identity.

5. CONCLUSION AND POLICY IMPLICATION

Based on the research of the adaptation to the COVID-19, it was concluded that in the future, re-adaptation to disasters should be used as an innovation in the development mechanism policy of village governments in Indonesia. It was not the typical social adaptation to disasters. Because the process was structured and planned for the outcomes, it strengthens the concept of re-adaptation.

The importance of re-adaptation as a development policy innovation is that the stage and design of disaster management must be included in the village government's development planning mechanization document. The village government policy should also make optimal use of digital technology to increase the participation of multiple parties in the process. As a result, the village community, local governments, private parties, and other relevant stakeholders recognize the procedures used to strengthen social resilience, which can help to accelerate recovery from disasters. The procedure also encourages their long-term use. Re-adaptation is used as a policy to reduce potential conflicts when efforts are made to strengthen the social resilience of Indonesian villages.

The study's weakness is that it did not analyse existing regulations and can be used to strengthen the legal basis to expand empirical collaboration practices to re-adapt to the post-COVID-19 transition era. Thus, it is hoped that there will be further research in the form of research-action in this regard.

REFERENCES

- [1] Badan Nasional Penanggulangan Bencana. (2020). Indeks Risiko Bencana Indonesia. <https://www.bps.go.id/news/2015/11/18/127/mengulik-data-suku-di-indonesia.html>.
- [2] Shafi, M., Liu, J., Jian, D., Rahman, I.U., Chen, X. (2021). Impact of the COVID-19 pandemic on rural communities: a cross-sectional study in the Sichuan Province of China. *BMJ Open*, 11(8): e046745. <http://dx.doi.org/10.1136/bmjopen-2020-046745>
- [3] Mueller, J.T., McConnell, K., Burow, P.B., Pofahl, K., Merdjanoff, A.A., Farrell, J. (2021). Impacts of the COVID-19 pandemic on rural America. *Proceedings of the National Academy of Sciences*, 118(1): 2019378118. <https://doi.org/10.1073/pnas.2019378118>
- [4] Henderson, D.X., DeCuir-Gunby, J., Gill, V. (2016). "It really takes a village": A socio-ecological model of resilience for prevention among economically disadvantaged ethnic minority youth. *The Journal of Primary Prevention*, 37(5): 469-485. <https://doi.org/10.1007/s10935-016-0446-3>
- [5] Kurnio, H., Fekete, A., Naz, F., Norf, C., Jüpner, R. (2021). Resilience learning and indigenous knowledge of earthquake risk in Indonesia. *International Journal of Disaster Risk Reduction*, 62: 102423. <https://doi.org/10.1016/j.ijdrr.2021.102423>
- [6] Mori, M., McDermott, R., Sagala, S., Wulandari, Y. (2019). Sinabung volcano: How culture shapes community resilience. *Disaster Prevention and Management: An International Journal*. <https://doi.org/10.1108/dpm-05-2018-0160>
- [7] Wilson, G.A., Hu, Z., Rahman, S. (2018). Community resilience in rural China: The case of Hu Village, Sichuan Province. *Journal of Rural Studies*, 60: 130-140. <https://doi.org/10.1016/j.jrurstud.2018.03.01>
- [8] Li, G., Wang, F., Quan, S.S. (2020). The impact of COVID-19 on the protection of rural traditional village. *Journal of Intelligent & Fuzzy System*, 39: 8685-8693. <https://doi.org/10.3233/JIFS-189264>
- [9] Cassidy, L., Barnes, G.D. (2012). Understanding household connectivity and resilience in marginal rural communities through social network analysis in the village of Habu, Botswana. *Ecology and Society*, 17(4). <https://doi.org/10.5751/es-04963-170411>
- [10] Adhiarso, D.S., Utari, P., Hastjarjo, S. (2019). The impact of digital technology to change people's behavior in using the media. *Digital Press Social Sciences and Humanities*, 2: 00005.
- [11] Anabestani, A., Javanshiri, M., Mahmoudi, H., Darban Astaneh, M.R. (2018). Spatial analysis of villagers' resilience against environmental hazards (a case study of central district of Faruj county). *Journal of Spatial Analysis Environmental hazards*, 5(1): 17-38. <https://doi.org/10.29252/jsaeh.5.1.17>
- [12] Castro, M.P., Zermeño, M.G.G. (2020). Being an entrepreneur post-COVID-19 –resilience in times of crisis: A systematic literature review. *Journal of Entrepreneurship in Emerging Economies*, 13(4): 721-746. <https://doi.org/10.1108/JEEE-07-2020-0246>
- [13] Setiawan, B., Rijanta, R., Baiquni, M. (2017). Sustainable tourism development: The adaptation and resilience of the rural communities in (the tourist villages of) Karimunjawa, Central Java. *Forum Geografi*, 31(2): 232-245. <https://doi.org/10.23917/forgeo.v31i2.5336>
- [14] Clarke, T., McNamara, K.E., Clissold, R., Nunn, P.D. (2019). Community-based adaptation to climate change: lessons from Tanna Island, Vanuatu. *Island Studies Journal*, 14(1): 59-80. <https://doi.org/10.24043/isj.80>
- [15] Munyai, R.B., Nethengwe, N.S., Musyoki, A. (2019). An assessment of flood vulnerability and adaptation: A case study of Hamutsha-Muungamunwe village, Makhado municipality. *Jàmbá: Journal of Disaster Risk Studies*, 11(2): 1-8. <http://dx.doi.org/10.4102/jamba.v11i2.692>
- [16] Ruan, Y., Zhu, D., Lu, J. (2019). Social adaptation and adaptation pressure among the "drifting elderly" in China: A qualitative study in Shanghai. *The International Journal of Health Planning and Management*, 34(2): e1149-e1165. <http://dx.doi.org/10.1002/hpm.2750>
- [17] Goździewski, L. (2020). From isolation to readaptation. Convict as the subject of penitentiary policy. *Journal of Modern Science*, 265-278. <http://dx.doi.org/10.13166/JMS/132174>
- [18] Grzesiak, S. (2021). Changing the social readaptation

- system for social security: From “Silo“ solutions to the integration approach – The case of Poland. *Journal of Security & Sustainability Issues*, 11(1): 91-101. <https://doi.org/10.47459/jssi.2021.11.6>
- [19] Janicke, M. (2009). A third industrial revolution? Solutions to the crisis of resource intensive growth. Environmental Policy Research Centre Freie Universität Berlin.
- [20] Mol, A.P. (2000). The environmental movement in an era of ecological modernisation. *Geoforum*, 31(1): 45-56. [https://doi.org/10.1016/S0016-7185\(99\)00043-3](https://doi.org/10.1016/S0016-7185(99)00043-3)
- [21] Mol, A.P., Spaargaren, G. (1993). Environment, modernity and the risksociety: The apocalyptic horizon of environmental reform. *International Sociology*, 8(4): 431-459. <https://doi.org/10.1177/026858093008004003>
- [22] Mol, A.P. (2010). Ecological modernization as a social theory of environmental reform. In the *International Handbook of Environmental Sociology*, Second Edition. Edward Elgar Publishing.
- [23] Lassa, J. (2009). Integration of disaster risk reduction and climate change adaptation. Conference Proceeding 5th Nasional Conference Community Based Disaster Risk Reduction. Jakarta: MPBI. https://www.zef.de/uploads/tx_zefportal/Publications/489b_Final-CBDRRIndonesia09.pdf
- [24] Brooks, N. (2003). Vulnerability, risk, and adaptation: A conceptual framework. Working Paper No 38. Norwich: Tyndall Center for Climate Research.
- [25] Murdiyarso, D. (2000). Adaptation to climatic variability and change: Asian perspectives on agriculture and food security. *Environmental Monitoring and Assessment*, 61(1): 123-131. <https://doi.org/10.1023/A:1006326404156>
- [26] Eyzaguirre, J., Warren, F.J. (2014). Adaptation: Linking research and practice. *Canada in Changing Climate: Sector Perspectives on Impacts and Adaptation*, F.J. Warren and D.S. Lemmen (eds.); Government of Canada, Ottawa, ON, pp. 253-286.
- [27] Ellis, B.J., Bianchi, J., Griskevicius, V., Frankenhuis, W.E. (2017). Beyond risk and protective factors: An adaptation-based approach to resilience. *Perspectives on Psychological Science*, 12(4): 561-587. <https://doi.org/10.1177/1745691617693054>
- [28] Perrings, C. (2006). Resilience and sustainability development. *Environmental and Development Economic*, 11(4): 417-427. <https://doi.org/10.1017/S1355770X06003020>
- [29] Baldassarri, D. (2015). Cooperative networks: Altruism, group solidarity, reciprocity, and sanctioning in Ugandan producer organizations. *American Journal of Sociology*, 121(2): 355-395. <https://doi.org/10.1086/682418>
- [30] Cunliffe, A.L., Scaratti, G. (2017). Embedding impact in engaged research: Developing socially useful knowledge through dialogical sensemaking. *British Journal of Management*, 28(1): 29-44. <https://doi.org/10.1111/1467-8551.12204>
- [31] Schiermer, B. (2014). Durkheim's concept of mechanical solidarity: Where did it go? *Durkheimian Studies*, 20(1): 64-88. <https://doi.org/10.3167/ds.2014.200104>
- [32] Imperiale, A.J., Vanclay, F. (2016). Experiencing local community resilience in action: Learning from post-disaster communities. *Journal of Rural Studies*, 47: 204-219. <https://doi.org/10.1016/j.jrurstud.2016.08.002>
- [33] Rapaport, C., Hornik-Lurie, T., Cohen, O., Lahad, M., Leykin, D., Aharonson-Daniel, L. (2018). The relationship between community type and community resilience. *International Journal of Disaster Risk Reduction*, 31: 470-477. <https://doi.org/10.1016/j.ijdr.2018.05.020>
- [34] Kolopaking, L.M. (2017). Village development and development of rural areas for sustainable inter-village cooperation in the digital era to strengthen villages competitiveness. *International Seminar Policy Intervention to Develop Village Competitiveness*. https://www.soumu.go.jp/main_content/000516371.pdf
- [35] Rhode, R.A.W. (2014). *Network Governance and the Differentiated Polity Selected Essays*. New York: McGraw-Hill.
- [36] Piattoni, S. (2010). *Theory of Multi-Level Governance Conceptual, Empirical and Normative Challenge*. New York: Oxford University Press Inc.
- [37] Wittmayer, J.M., Avelino, F., van Steenberghe, F., Loorbach, D. (2017). Actor roles in transition: Insights from sociological perspectives. *Environmental Innovation and Societal Transitions*, 24: 45-56. <https://doi.org/10.1016/j.eist.2016.10.003>
- [38] Scott, C.A., Shrestha, P.P., Lutz-Ley, A.N. (2020). The re-adaptation challenge: Limits and opportunities of existing infrastructure and institutions in adaptive water governance. *Current Opinion in Environmental Sustainability*, 44: 104-112. <https://doi.org/10.1016/j.cosust.2020.09.012>
- [39] Kimhi, S. (2016). Levels of resilience: Associations among individual, community, and national resilience. *Journal of Health Psychology*, 21(2): 164-170. <https://doi.org/10.1177/1359105314524009>
- [40] Southwick, S.M., Bonanno, G.A., Masten, A.S., Panter-Brick, C., Yehuda, R. (2014). Resilience definitions, theory, and challenges: interdisciplinary perspectives. *European Journal of Psychotraumatology*, 5(1): 25338. <https://doi.org/10.3402/ejpt.v5.25338>
- [41] Estrada, M.A.R., Koutronas, E. (2019). The basic manual of social security: Theory and valuation. Preprint. <https://doi.org/10.13140/RG.2.2.35578.75204/3>
- [42] Evangelos, K. (2018). Chapter II overview of social security. In Estrada, Mario Arturo Ruiz and Koutronas, Evangelos, 2018. *The Basic Manual of Social Security: Theory and Evaluation*.
- [43] Wahyudi, S., Ulum, I., Salahudin. (2017). The implementation of Electronic government-based village governance in village autonomy era. *International Journal of Current Research*, 9(2): 46982-46991.
- [44] Hidayatullahman, M., Purwanto, E. (2020). Initiate of digital village for excellence service in archipelago area. *Journal of Community Service and Empowerment*, 1(3): 121-127. <https://doi.org/10.22219/jcse.v1i3.13467>
- [45] Rice, E.S., Haynes, E., Royce, P., Thompson, S.C. (2016). Social media and digital technology use among Indigenous young people in Australia: A literature review. *International Journal for Equity in Health*, 15(1): 1-16. <https://doi.org/10.1186/s12939-016-0366-0>
- [46] Blandford, A., Gibbs, J., Newhouse, N., Perski, O., Singh, A., Murray, E. (2018). Seven lessons for interdisciplinary research on interactive digital health interventions. *Digital Health*, 4. <https://doi.org/10.1177/2055207618770325>
- [47] Jamroni, M., Sukesu, K., Yulianti, Y., Purnomo, M. (2021). Village community resilience in handling the

- COVID-19 pandemic. *Multicultural Education*, 7(6): 155-170.
- [48] Sihalo, E.D., Wiksadana, W., Siregar, C.D.T. (2020). Impacts of regional economic factors on the transmission of coronavirus disease 2019 (COVID-19) in Indonesia. *Ekonomis: Journal of Economics and Business*, 4(2): 397-403. <http://doi.org/10.33087/ekonomis.v4i2.180>
- [49] Fadly, F. (2020). The effects of human mobility restriction during Covid-19 pandemic to Indonesia's economy. *Kajian Ekonomi dan Keuangan*, 4(3): 263-280. <http://dx.doi.org/10.31685/kek.V4.3.678>
- [50] Susilawati, S., Falefi, R., Purwoko, A. (2020). Impact of COVID-19's pandemic on the economy of Indonesia. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, 3(2): 1147-1156. <https://doi.org/10.33258/birci.v3i2.954>
- [51] Susilawati, S., Falefi, R., Purwoko, A. (2020). Impact of COVID-19's pandemic on the economy of Indonesia. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, 3(2): 1147-1156. <https://doi.org/10.33258/birci.v3i2.954>
- [52] Somanje, A.N., Mohan, G., Lopes, J., Mensah, A., Gordon, C., Zhou, X., Moinuddin, M., Saito, O., Takeuchi, K. (2020). Challenges and potential solutions for sustainable urban-rural linkages in a Ghanaian context. *Sustainability*, 12(2): 507. <https://doi.org/10.3390/su12020507>
- [53] Sjaf, S., Kaswanto, K., Hidayat, N.K., Barlan, Z.A., Elson, L., Sampean, S., Gunadi, H.F.F. (2021). Measuring achievement of sustainable development goals in rural area: A case study of sukamantri village in Bogor District, West Java, Indonesia. *Sodality: Jurnal Sosiologi Pedesaan*, 9(2): 33896. <https://doi.org/10.22500/9202133896>
- [54] Eberhardt, W., Küpper, P., Seel, M. (2022). Opportunities and threats of digital transformation for village shops: Coronavirus pandemic as a catalyst? *Raumforschung und Raumordnung | Spatial Research and Planning*. DE. <https://doi.org/10.14512/rur.121>
- [55] Lock, I. (2019). Explicating communicative organization-stakeholder relationships in the digital age: A systematic review and research agenda. *Public Relations Review*, 45(4): 101829. <https://doi.org/10.1016/j.pubrev.2019.101829>
- [56] Creswell, J.W. (2008). Editorial: Mapping the field of mixed methods research. *Journal of Mixed Methods Research*, 3(2): 95-108. <https://doi.org/10.1177/1558689808330883>
- [57] Cameron, R. (2009). A sequential mixed model research design: Design, analytical and display issues. *International Journal of Multiple Research Approaches*, 3(2): 140-152. <https://doi.org/10.5172/mra.3.2.140>
- [58] Creswell, J.W., Hanson, W.E., Clark Plano, V.L., Morales, A. (2007). Qualitative research designs: Selection and implementation. *The counseling psychologist*, 35(2): 236-264. <https://doi.org/10.1177/0011000006287390>
- [59] Dong, Z.Q., Ma, J., Hao, Y.N., Shen, X.L., Liu, F., Gao, Y., Zhang, L. (2020). The social psychological impact of the COVID-19 pandemic on medical staff in China: A cross-sectional study. *European Psychiatry*, 63(1): 1-22. <https://doi.org/10.1192/j.eurpsy.2020.59>
- [60] Hertel, C., Bacq, S., Belz, F.M. (2019). It takes a village to sustain a village: A social identity perspective on successful community-based enterprise creation. *Academy of Management Discoveries*, 5(4): 438-464. <https://doi.org/10.5465/amd.2018.0153>
- [61] De Pasquale, C., Sciacca, F., Martinelli, V., Chiappedi, M., Dinaro, C., Hichy, Z. (2020). Relationship of internet gaming disorder with psychopathology and social adaptation in Italian young adults. *International Journal of Environmental Research and Public Health*, 17(21): 8201. <https://doi.org/10.3390/ijerph17218201>
- [62] Spanhel, K., Balci, S., Baumeister, H., Bengel, J., Sander, L.B. (2020). Cultural adaptation of Internet-and mobile-based interventions for mental disorders: A systematic review protocol. *Systematic Reviews*, 9(1): 1-7. <https://doi.org/10.1186/s13643-020-01438-y>
- [63] Whitelaw, S., Mamas, M.A., Topol, E., Van Spall, H.G. (2020). Applications of digital technology in COVID-19 pandemic planning and response. *The Lancet Digital Health*, 2(8): e435-e440. [https://doi.org/10.1016/S2589-7500\(20\)30142-4](https://doi.org/10.1016/S2589-7500(20)30142-4)
- [64] Kivits, J. (2013). E-health and renewed sociological approaches to health and illness. In *Digital Sociology*, pp. 213-226. https://doi.org/10.1057/9781137297792_15
- [65] Tebaldi, R. (2019). Social Protection in Asia and the Pacific: Inventory of Non-Contributory Programmes (No. 414). https://ipcig.org/pub/eng/RR28_Social_Protection_in_Asia_and_the_Pacific_Inventory_of_non_contrib.pdf
- [66] Holmemo, C., Pablo, A., George, T., Palaciaos, R.J., Pinxten, J., Tiwari, S.S.S. (2020). Investing in people: Social protection for Indonesia's 2045 vision. *The World Bank*. Australian Government.
- [67] Masiero, S. (2020). COVID-19: What does it mean for digital social protection? *Big Data & Society*, 7(2). <https://doi.org/10.1177/2053951720978995>