

**LAPORAN AKHIR
PENELITIAN SKEMA PENELITIAN TERAPAN**



**COMMUNITY RESILIENCE TO OVERCOME THE IMPACT OF THE
POST- LANDSLIDE DISASTER MANAGEMENT IN KULON PROGO
REGENCY**

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UNIVERSITAS MUHAMMADIYAH YOGYAKARTA

Dibiayai Oleh Lembaga Riset dan Inovasi (LRI)
Universitas Muhammadiyah Yogyakarta
Tahun Anggaran 2021/2022

PROTEKSI ISI LAPORAN AKHIR PENELITIAN

Dilarang menyalin, menyimpan, memperbanyak sebagian atau seluruh isi laporan ini dalam bentuk apapun kecuali oleh peneliti dan pengelola administrasi penelitian.

LAPORAN AKHIR PENELITIAN

Informasi Data Usulan Penelitian

1. IDENTITAS PENELITIAN

A. JUDUL PENELITIAN

Community Resilience to Overcome the Impact of the Post- landslide Disaster Management in Kulon Progo Regency

B. SKEMA, BIDANG, TEMA, DAN TOPIK PENELITIAN

Skema Penelitian	Bidang Fokus Penelitian	Tema Penelitian	Topik Penelitian
Penelitian Terapan	Kebencanaan	Mitigasi berkelanjutan terhadap bencana alam	Kesiapsiagaan masyarakat menghadapi bencana alam.

C. KOLABORASI DAN RUMPUN ILMU PENELITIAN

Jenis Kolaborasi Penelitian	Rumpun Ilmu 1	Rumpun Ilmu 2	Rumpun Ilmu 3
Kolaboratif Luar Negri	ILMU EKONOMI	ILMU EKONOMI	Ekonomi Pembangunan

D. WAKTU PELAKSANAAN

Tahun Usulan	Tahun Pelaksanaan	Lama Penelitian
2021	2022	1

E. ANCOR RESEARCH

Anchor Research	Topik Anchor
Agus Setyo Muntohar, Prof., S.T., M.Eng.Sc, Ph.D.(Eng.)	Disaster Resilience, Technology and Mitigation

2. IDENTITAS PENELITIAN

Nama	Peran	Tugas
Diah Setyawati Dewanti, S.E., M.Sc., Ph.D.	Ketua Pengusul	Melaksanakan penelitian bersama dengan team pengusul sesuai dengan tujuan penelitian

Nama	Peran	Tugas
Endah Saptutyningasih, Prof. Dr., S.E., M.Si.	Anggota Pengusul	Membantu menyusun penulisan artikel atau publikasi internasional
Anisah Rahma Fitriani	Mahasiswa Bimbingan	membantu dalam analisa kualitatif

3. MITRA KERJASAMA PENELITIAN (JIKA ADA)

Pelaksanaan penelitian dapat melibatkan mitra kerjasama, yaitu mitra kerjasama dalam melaksanakan penelitian, mitra sebagai calon pengguna hasil penelitian, atau mitra investor

Mitra	Nama Mitra	Kepakaran
KKUIC	Wei Yang	Human Geography

4. KOLABORASI PENELITIAN (JIKA ADA)

Mitra	NIDN/NIK	Instansi
Wei Yang	E64329748	Khon Kaen University International College

5. LUARAN DAN TARGET CAPAIAN

Luaran Wajib

Tahun	Jenis Luaran
1	Publikasi Jurnal Internasional terindeks SCOPUS,
1	Naskah Kebijakan

Luaran Tambahan

Tahun	Jenis Luaran
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6. KLUSTER

Kluster	Sub Kluster	Group Riset	Mata kuliah
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7. ANGGARAN

Rencana anggaran biaya penelitian mengacu pada PMK yang berlaku dengan besaran minimum dan maksimum sebagaimana diatur pada buku Panduan Penelitian dan Pengabdian kepada Masyarakat.

Total Keseluruhan RAB Rp. 25,000,000

Tahun 1 Total Rp. 25,000,000

Jenis Pembelanjaan	Komponen	Item	Satuan	Vol.	Harga Satuan	Total
BAHAN	Bahan (Habis Pakai)	Kuesioner	Unit	150	Rp. 25,000	Rp. 3,750,000
PELAPORAN, LUARAN WAJIB, DAN LUARAN TAMBAHAN	Biaya Luaran KI (Paten, Hak Cipta , dll)	Luaran publikasi	Paket	1	Rp. 125,000	Rp. 125,000
PENGUMPULAN DATA	Biaya Konsumsi Harian	Konsumsi FGD, Rapat dan Pengambilan Kuantitatif	OH	250	Rp. 50,000	Rp. 12,500,000
PENGUMPULAN DATA	Tunjangan Kehadiran FGD	Kehadiran FGD Fase 2	OK(Kali)	15	Rp. 150,000	Rp. 2,250,000
PENGUMPULAN DATA	Tunjangan Kehadiran FGD	Kehadiran Wawancara (Fase 1)	OK(Kali)	25	Rp. 75,000	Rp. 1,875,000
ANALISIS DATA	Honorarium Analisis Data	Analisis Data	OK(Kali)	3	Rp. 1,000,000	Rp. 3,000,000

8. LEMBAR PENGESAHAN

HALAMAN PENGESAHAN LAPORAN AKHIR PENELITIAN SKEMA:

Judul : Community Resilience to Overcome the Impact of the Post- landslide Disaster Management in Kulon Progo Regency
 Peneliti/Pelaksana : Diah Setyawati Dewanti, S.E., M.Sc., Ph.D.
 NIDN : 0526108201
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Mitra : KKUIC
 Nama Mitra : Wei Yang
 Kepakaran : Human Geography

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Institusi : Khon Kaen University International College

Biaya : Rp. 25,000,000

Yogyakarta, 15 Agustus 2022
Mengetahui,
Kepala LRI,


Prof. Dr. Dyah Mutiarin, MS.i.
NIK : 19700502 199603

9. RINGKASAN

A community's resilience is the integration of social capital, physical infrastructure and culturally embedded to give interdependence to recover from dramatically change, sustain the adaptability and also maintaining the growth during the time crisis. The main objective of this research is to develop the community resilience guideline to overcome the impact of post-landslide disaster management in Kulon Progo regency. This research is referring to concurrent mixed method designs when qualitative and quantitative data are supported to established guideline for the landslide disaster in Kulon Progo Regency. The unit analysis of this research is household. The study area chosen as the disaster prone area for landslide. The variables integrated in this research are personal characteristics and livelihoods assets as the resources for post-landslide disaster. Quantitative phase is collected by structured interview guideline through questionnaire. The household are chosen based on systematic random sampling based on the map of the village. The respondents has been collected from 300 samples. The dependent variables is post-disaster phase which is recovery. The independent variables consists of livelihoods assets (human capital, social capital, natural capital, physical capital and financial capital) and transformation of structure (based on culture and religion). The research analysis apply Structure Equation Model which is Path analysis. Through the result of Path analysis, livelihoods assets and transformation of structure has direct and indirect effect to support the recovery phase of disaster management with significancy less than 0.05 and 0.01. Based on the frequency, the respondents were lived in Gerbosari (49.0%), Kebonharjo (10.3%), Ngagosari (10.0%), Purwoharjo (10.3%), Banjarsari (17.7%) and Sidoharjo (2.7%). The socio demographics of respondents based on the length of education years, most of the respondents were graduated in 12 years (40.3%) and less than 12 years (53.0%). The number of households members who work is mostly 1 person (45.3%) and 2 person (32.3%). The level of capacity on recovery is in the medium level (45.3%), including disaster management (46.0%). Post-landslide through recovery phase do not have any relations to social capital which defined as family relations and public relationship. Recovery phase do have direct and indirect effect to all livelihoods assets and transformation of structure.

10. KEYWORDS

Landslide, post-disaster management, community resilience

11. HASIL PELAKSANAAN PENELITIAN

Rapid growth and urbanization cause the changes of land-use patterns dramatically which could sharply decrease the ecological land, therefore the natural water networks are fragmented and bring the vulnerability on urban ecological systems (Han et al., 2016). Moreover, the global climate brings extreme weather brought increasing tendency which poses serious impact of risks to the fragile ecological system. The rainfall constrained landslide as the most serious disaster type towards geological disasters, including in Indonesia.

Studies on resilient cities are still at an early stage, and most research is qualitative, exploring how to build resilience by examining the characteristics of resilient cities. Although, in the field of disaster management there are several review articles about resilient cities (Rus, Kilar, & Koren, 2018), there is a lack of specific research on empirical cases, particularly quantitative empirical studies. Besides, current evaluation systems are very macroscopic, and seldom involve evaluation of the specific characteristics of specific disasters; the systems also ignore the disaster prevention and mitigation abilities of people (Zhang, Song, Peng, & Wu, 2019).

There are many lessons that can be taken from the implementation of disaster risk reduction policy including the government law, the strength of coordination and networking, community participation, implementation of damage and loss assessment, post disaster recovery process, and more adequately disaster funding management. Nonetheless, all efforts still do not significantly hasten the recovery process (Angeningsih, 2015). Catastrophic or cataclysmic events impair a community's capacity to fulfill its functions (Eggerman & Panter-Brick, 2010). Recovery, sustainability and growth are possible but highly dependent on the resources available to the community and the strengths that are nurtured before a negative event occurs. A review of the research on community resilience suggests that most individuals are only as successful as their communities as a whole and that this success depends on the resources a community has (Ungar, 2011). Among these resources are both an individual's informal social supports and the formal social service systems such as those of child welfare, education, corrections, and health care.

A community's resilience is its social capital, physical infrastructure, and culturally embedded patterns of interdependence that give it the potential to recover from dramatic change, sustain its adaptability, and support new growth that integrates the lessons learned during a time of crisis (Ungar, 2011). Community resilience and post-recovery phase of disaster management is the combination to reduce the vulnerability caused by the landslide, mostly to low level in socio-economic status. The objective of this research is to develop the community resilience guideline to overcome the impact of post-landslide disaster management in Kulon Progo regency. The guideline could be applied in several areas who have high vulnerability on landslide areas.

Seeking or proposing definitions of disaster can be a complex task that brings out the pedantic in scholars and may create considerable frustration. Some of the complexity and frustration can be addressed by specifying the purpose and audience for definitions of disasters. Such definitions must be placed into a meaningful context that clarifies the essential goal of the definition and the uses to which the definition is to be put. At the outset, it must be

acknowledged that the goals in creating definitions vary and that there is no single legitimate purpose or content for definitions. Further, one must clarify whether disaster is being defined as a concept or as an area of study, although there is an inevitable overlap between the two approaches (Karver, 1986). Disaster events are complex, multi-dimensional phenomena, with a wide range of human, socio-economic, cultural, political, and physical impacts. While the disaster event itself presents an immediate shock to impacted populations, the ramifications of disaster events tend to be ongoing:

Exposure to disaster impact is only the opening salvo. As the disaster unfolds, and far into the aftermath, the affected populations grapple with loss and change, consequences that persevere long after the risk for physical harm has dissipated. This trilogy of forces - exposure to hazard, massive personal and societal loss, and profound and enduring life change - characterize the nature of disaster (Shultz, Espinel, Galea, & Reissman, 2006, p. 69)

Although natural hazards have been a risk for human communities for centuries, the number of disaster events and their associated impacts has been increasing, particularly since the 1960s (Joakim, 2013).

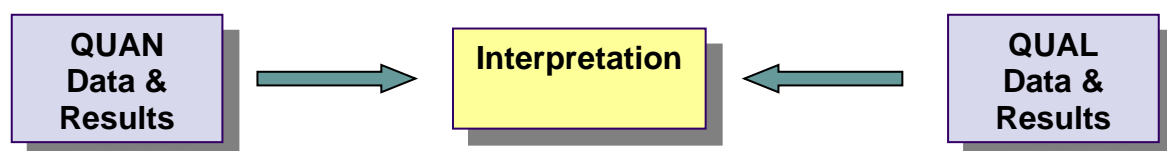
The resilience concept is fuzzy and having different on each person. The use of term resilience has been conceptualize by the Hyogo Framework for Action which stated this as the guide and define the characteristics of resilient communities. The resilient need to cope disaster with rapid-onset shocks or significant and protracted source of stress. The resilience paradigm shifts disaster causation from environmental determinism to social constructionism which disaster manifest the disequilibrium in the social structure and reduce the communities' capacity to withstand shocks and stresses. The United Nations International Strategy for Disaster Reduction (UNISDR) notion of resilience tends to be all-encompassing as it views resilience to be the capacity of a system, community or society potentially exposed to hazards to adapt through resistance or change to reach and maintain an acceptable level of functioning and structure. This is determined by the degree to which the social system is capable of organising itself to increase the capacity for learning from past disasters for better future protection and to improve risk reduction measures (UNISDR, 2005). Thus, the UNISDR definition of resilience appears to be underpinned by elements of complex science. Terms such as 'capacity', 'learning', 'organising' and 'adapt', which potentially signal community agency, radicalised approaches to dealing with disaster. In many ways, the UNISDR definition of resilience assumes that resilient communities have the capacity to 'bounce forward' and move on following a disaster. Capacity is used here to mean a combination of all the strengths and resources available within a community, society or organisation that can reduce the level of risk or the effects of a disaster. This may include physical, institutional, social or economic means as well as skilled personal or collective attributes such as leadership and management (Alagh, 2021).

In political ecology and global environmental change literature, resilience is related to the concept of adaptive capacity, that is the ability of a system to adjust to change, moderate the effects of and cope with a disturbance (Burton, Huq, Lim, Pilifosova, & Schipper, 2002). Adaptive capacity is needed to reduce climate change impacts, particularly in climate-related disasters. This has implications for policy and institutional resilience. In examining resilience implications of policy-informed response to climate change, Adger (Adger et al., 2011) and colleagues argue that adaptive capacity is, in general, influenced by economic development and technology as well as by social factors such as human capital and governance. However, adaptation can be either positive or negative. Positive adaptation depends on the institutional

rules, norms and way of doing things and includes skills, abilities and knowledge, as well as the willingness to use these tools to achieve set goals. Negative adaptation tends to suppress the institutional rules, norms and values through, for example, corruption, oppression and human rights abuses (Carpenter, 2011). Although adaptive capacity has been primarily associated with climate change, it can be used in a number of contexts, whether related to climate, economic, conflict or other stresses and shocks (Jones et al., 2010).

The composite model of community resilience within which psychological factors as the central role. One approach to manage the community resilience involves the measurement qualities as the components of the model and determine the utility as the predictors of resilience. In this research, the researcher use livelihoods assets or capitals and measurement of personal characteristics to influence the response to adversity. The cognitive component underpins the ability to impose a sense of coherence or meaning on adverse and atypical experiences and making decisions regarding whether to confront the problem. The final element, environmental resilience, describes community practices (e.g., sense of community) which mitigate adverse consequences and maximise the potential for recovery. The wealth and diversity of psychological variables that could be implicated in this context necessitates an initial selection of salient variables. The utility of a model is a function of its ability to account for differences in resilience when assessed against a range of hazards. Self-efficacy describes individuals' appraisal of their performance capability and influences their receptivity to information and the likelihood of their adopting risk reduction behaviours. Sense of community (feelings of belonging and attachment for people and places) encourages involvement in community response following disaster and increases access to, and utilisation of, social support networks. Individuals who perceive themselves as having no investment in their community may develop a level of detachment which, following a disaster, may trigger feelings of isolation and encourage learned helplessness and heighten social vulnerability. Sense of community also provides insights into the prevailing degree of community fragmentation and, consequently, the level of support for mitigation strategies involving collective community action. Problem-focused coping (confronting the problem) represents a mechanism for facilitating resilience. Risk perception per se, has proven an inadequate guide to the adoption of risk reduction behaviour. Here risk perception is examined from the perspective of the relationship between hazard effects and community activities (e.g., whether it disrupts employment) and its implications for identifying the relative salience of different potential threats (Paton et al., 2013). The livelihoods assets is defined as human capital, social capital, financial capital, physical capital and natural capital (Dewanti, Ayuwat, & Yongvanit, 2019).

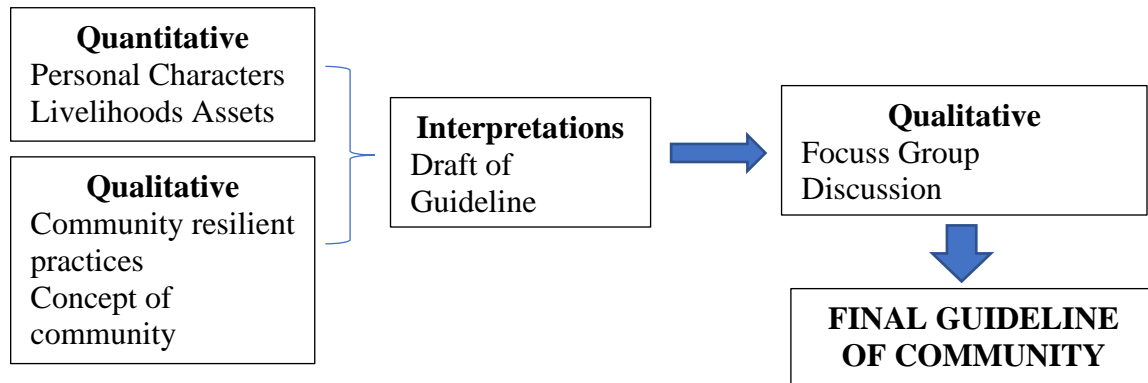
This research is referring to concurrent mixed method designs when qualitative and quantitative data are supported to established guideline for the landslide disaster in Kulon Progo Regency (see Picture 1). The concurrent designs include concurrent triangulation, concurrent nested and concurrent transformative. This design involves a single study containing qualitative and quantitative data collection which is conducted at the same time. The purpose of this type of investigation is to validate the findings generated by each method through evidence produced by the other. The term 'concurrent' indicates that both qualitative and quantitative data are being collected at the same time. However, in concurrent nested studies, one of the methods dominates whilst the other one is embedded, or nested, in it. The research question to be answered by the embedded method may be of a secondary nature or address a very specific subtopic that is connected with the general research question.



Picture 1. The Concurrent Mixed Methodology

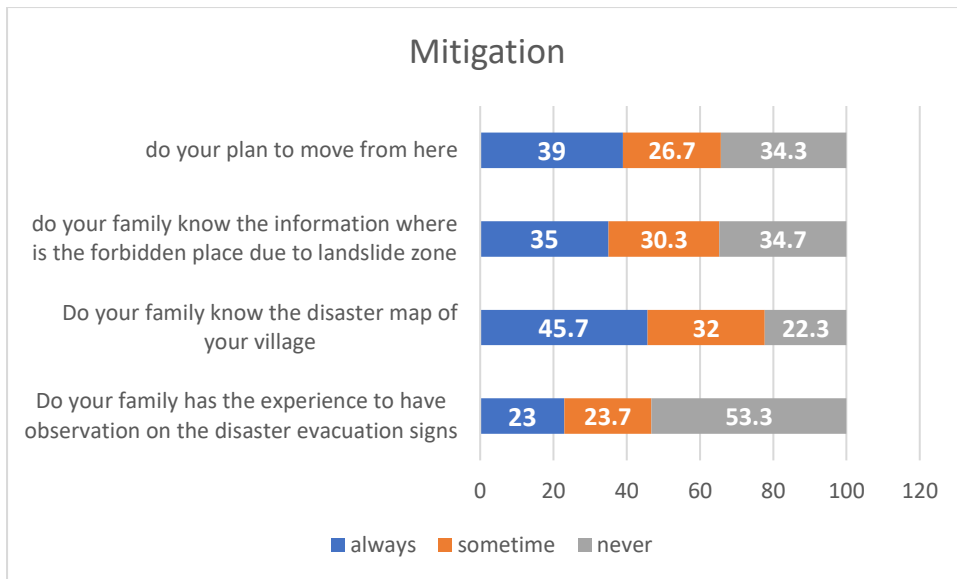
The unit analysis of this research is community. The study area chosen as the disaster prone area for landslide. The variables integrated in this research are personal characteristics and livelihoods assets as the resources for post-landslide disaster. Quantitative phase is collected by structured interview guideline through questionnaire. The household are chosen based on systematic random sampling based on the map of the village. Meanwhile the quantitative is collected, the qualitative will be collected to the head of hamlet. Qualitative phase carry out by focuss group discussion and indepth interview. The indepth interview prepared as the first phase in qualitative to recognize main idea of head of hamlet concerning community resilience post-landslide disaster management. The focuss group discussion conducted after the draft of guideline has been drawn by the researcher.

The research framework for this research could be define in Picture 2.

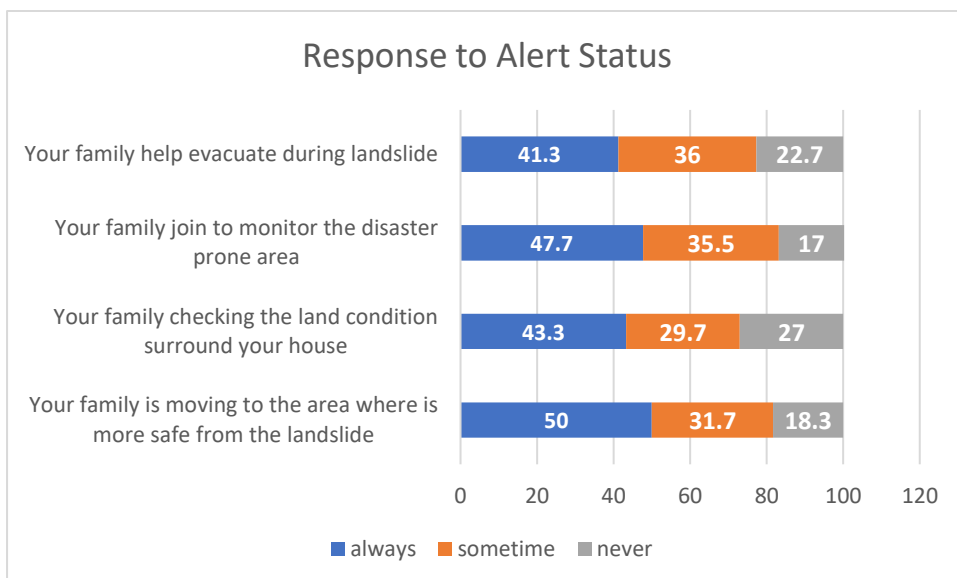


These research prepare in 2 phase which the first need quantitative and qualitative research methods to support the data. Quantitative will applied by the definition and practical guide of each personal characters of landslide disasters and the livelihoods assets as the capitals of the community. The qualitative phase conducted as to strengthen the community resilient practices which had been applied and their own concept of community resilient. Through this data strengthen by literature review, the draft of guideline could be developed. The last phase is having focuss group discussion to all the local stakeholders and discuss the final guideline of community resilience could be applied in this local area to face the post-disaster management in landslide. Mss. Wei Yang has been graduated from human geography, therefore she is supporting the qualitative development as the drafting the guideline.

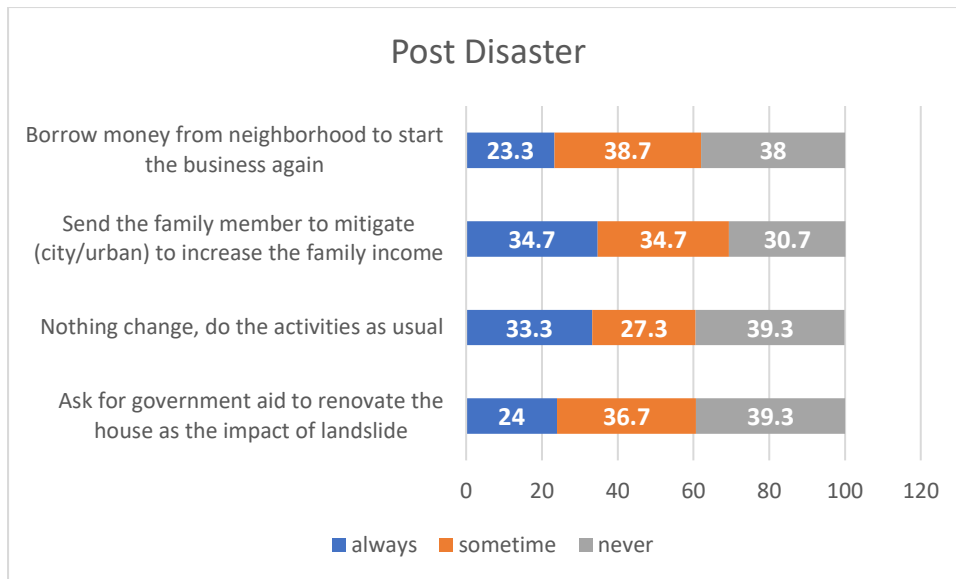
In this phase, the researcher has been collected the quantitative research methods. The total sampling is 300. In the mitigation most of the households were lack in the disaster evacuation signs concerning the dangerous of landslide (55.3%).



In the response to alert status, most of the family is trying to find better or more safe place from the impact of landslide. As much as 50% households stated want to move to area which is more safe. However, less family carried to do checking and monitoring their house from the worse impact of landslide.



The government aid to renovate for houses who get impacted from the landslide were always proposed by family in Samigaluh. Sending the family member to urban city, with main aim is to achieve more income as to receive the wellbeing of the households were approximately half of the total respondents were always and sometime carrying this out. When the government aid has not give appropriate fund to renovate their house and start the business over after the landslide, most of the households were borrowing the money from neighborhood (38.0%).



The multivariate analysis developed through Structural Equation Model (SEM) using Path analysis model. The endogeneous variables are defined as the livelihoods assets and transformation of structure, meanwhile the exogeneous variable recovery as post-disaster management in landslide has been identify as transformation on structure and recovery phase. The financial capital is only included the income which is monthly measured from the households. The transformation on structure defined as the transformation on culture and religious aspects. Therefore, the SEM equation has been identify as follows:

$$Recov_{11} = \beta_{12} HC_{12} + \beta_{22} SC_{22} + \beta_{32} NC_{32} + \beta_{42} PC_{42} + \beta_{52} FC_{52} \dots (1)$$

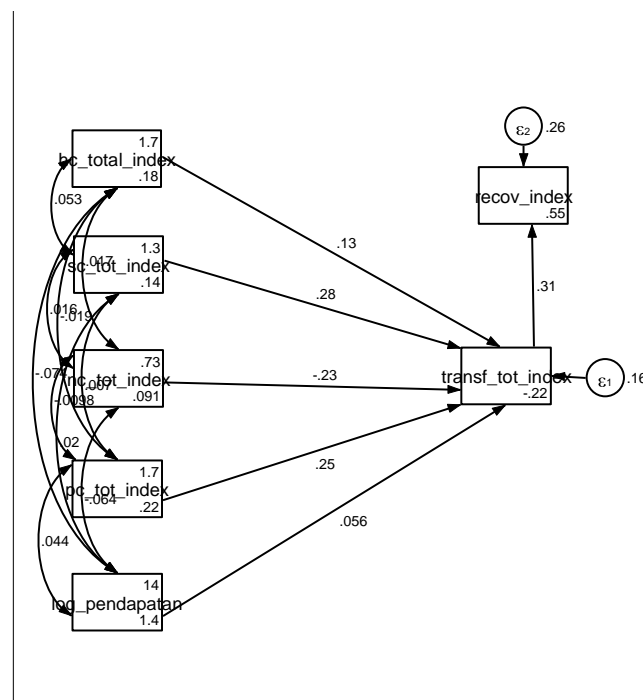
$$Transf_{11} = \beta_{12} HC_{12} + \beta_{22} SC_{22} + \beta_{32} NC_{32} + \beta_{42} PC_{42} + \beta_{52} FC_{52} \dots (2)$$

The measurement of path analysis is resulted the total effects on each of endogeneous and exogeneous variables. Table 1 has been shown the result of path analysis using stata program. All of the endogenous variables are significant in level 0.05 and 0.01 in direct and indirect effects. As in the direct effects, transformation on structure has been significant and positive impact with 0.276** and physical capital is significant and positive impact with 0.246** as the coefficient to recovery phase.

Table 1. Direct and Indirect Effect Variable to support Recovery phase in Landslide Disaster Management

Total effects

	OIM					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
Structural							
transf_tot_index <-							
hc_total_index	.1335549	.0577515	2.31	0.021	.0203641	.2467457	
sc_tot_index	.2755613	.0661721	4.16	0.000	.1458663	.4052562	
nc_tot_index	-.2260253	.0778909	-2.90	0.004	-.3786886	-.0733621	
pc_tot_index	.2464168	.0494285	4.99	0.000	.1495388	.3432949	
log_pendapatan	.0563662	.019594	2.88	0.004	.0179627	.0947697	
recov_index <-							
transf_tot_index	.3097725	.0670854	4.62	0.000	.1782875	.4412575	
hc_total_index	.0413716	.020008	2.07	0.039	.0021567	.0805866	
sc_tot_index	.0853613	.0276029	3.09	0.002	.0312607	.1394619	
nc_tot_index	-.0700164	.0284973	-2.46	0.014	-.1258702	-.0141627	
pc_tot_index	.0763332	.0225326	3.39	0.001	.0321701	.1204962	
log_pendapatan	.0174607	.0071512	2.44	0.015	.0034446	.0314768	



Picture 1. Path analysis result of recovery phase in landslide disaster management.

12. KESIMPULAN PENELITIAN

The livelihoods assets has been identified impacted to recovery phase in disaster management. Post-disaster management define as the interdependency of households after the landslide disaster management. Borrowing the neighborhood to support their business and increase their welfare (23.3%). Sending the family member to work in the city (34.7%) is the way for households could improve their income and welfare. It is potential to support the specific

intervention for the vulnerable households (Quandt, 2018). The internal policy implication could improve the livelihoods strategies in strengthen the assets (Rakodi, 1999). Developing the internal disaster policy named as “panduan mitigasi desa siaga bencana longsor” to be the main guideline (Alagh, 2021).

In relating to develop the internal disaster guideline, the further policy is preparing the willingness to pay as the mitigation phase (Zhang & Qian, 2018). Indonesia has the Community-based Disaster Management in national level (Ali, 2019), it need to propose the further internal disaster guideline which is more practically to utilized by village. The phenomena post-traumatic from the landslide need also improving the operations of cognitive appraisal to arrange the planning of recovery phase, such as insurance (Knez et al., 2018).

13. STATUS LUARAN WAJIB

The output of this research is international publication and *draft naskah akademik*. The international publication is prepared for conference with Scopus proceeding indexed, the process is preparing the extended abstract submitted into GCBS 2022 (<http://gcbss.org/>).

14. DAFTAR PUSTAKA

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