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The Impact of the Earthquake Disaster on the Lives of the Community in Nagari Malampah, Pasaman Regency

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ABSTRACT: Give description comprehensive about activity research conducted in a brief way. The earthquake that occurred on February 25, 2022, in the Regency of Pasaman give impact big to life community, especially in Malampah Village. This disaster caused damage to infrastructure, disruption activity economy, change eye livelihood, a decline in income, as well as changes in the social community. Research this aim for now impact earthquake earth to eye livelihood, income and life social community in Nagari Malampah, Pasaman Regency. The research uses a mixed-methods approach with a sequential explanatory design, namely combine approach of quantitative and qualitative methods. Data were collected through observation, interviews, documentation, and a dissemination questionnaire to the public affected by the earthquake. Qualitative data were analysed using the Miles and Huberman model, while the quantitative data analyzed in a way descriptive using the Achievement Level Respondents (RAL). Research results: 1). The impact of the earthquake earth to eye livelihood of the public shows that disaster earthquake earth has cause enough change to eye livelihood of the people of Nagari Malampah. Based on interview results, damage land agriculture, plantations, and means of economic support causes part of the public to lose their main livelihood or experience decline chance work. Conditions the push public for look for work additionally, to be laborer daily, or do work side job as a strategy for fulfil need life post-disaster (2). Impact earthquake earth to income public show that condition income public experience decline, although start shows the recovery process. On the indicator income low, still there is grains statement that obtains RAL value of 41.66% (very low) good), whereas indicator other is in the category not enough Good until Enough Good with value of 66.00%–74.66%, which indicates Still existence communities experiencing difficulty economy post-earthquake. Furthermore, on the indicator income medium, all RAL values are in the range of 76.33%–86.00%, so that including category Enough Good until good. This is show that part public start capable restore condition the economy, even though recovery the Not yet evenly. Meanwhile that, indicator income tall own RAL value between 76.66%–78.66% with category Enough good, which indicates that only part the community that has capable increase or maintain his income after disaster, whereas part other Still face constraint consequence damage land, disturbance activity economy, and the reduction chance Work.

KEYWORDS: Disaster, Earthquake, Community

INTRODUCTION

Indonesia is one of the countries with level activity seismic the highest in the world because located at the meeting point three plate tectonics main, namely Indo-Australian Plate, Eurasian Plate, and Pacific Plate. Interactions third plate the forming a convergence zone known active as a triple junction and become part from Ring of Fire route. Movement The Indo-Australian Plate is subducting to lower Eurasian Plate through subduction process produce accumulation energy tectonics that occur at any time released in form earthquake earth. In addition, the activity fault active and system volcanic eruptions that develop along the Indonesian archipelago is increasingly increase complexity threat geology. Conditions This causing Indonesia to experience frequency earthquake high ground, both those that occur on land or below sea, so that make this area as one of the area with risk disaster earthquake the largest earthquake and tsunami in the world (Hall, 2012; Sieh & Natawidjaja, 2000). earth tectonics is type the most frequent earthquakes occurred in Indonesia and was caused by the release of energy consequence movement plate tectonic. Earthquake the can occurs in various depth hypocenter and has level different damages depends on magnitude, depth, conditions geology local, as well as level vulnerability of the affected area. Different with disaster others that can monitored development the incident, earthquake earth happen in a way suddenly so that difficult predicted in a way right. As a result, the earthquake earth often causing loss of life, damage building, disturbance to service public, as well as loss huge economic impact. economy the No only in the form of damage asset physical, but also the disturbance activity production, distribution, trade, and decline income public in term short and term long. Research in the International Journal of Disaster

Risk Reduction shows that an earthquake can influence the economy and society, small businesses, household welfare, and slow down the development process if recovery is not done in an effective way.

Globally, disasters geology like earthquake and tsunamis provide significant contributions to casualties and economic losses. Report international show that developing countries are the most vulnerable groups Because own capacity for mitigation, preparedness, and recovery is relatively limited. Damage infrastructure, loss eye livelihood, increasing number poverty, as well as disturbance service public become consequence main thing that often happen after disaster. The impact of the event can continue for years if the rehabilitation and reconstruction process is not supported by effective and sustainable policies. One of the areas that has level vulnerability earthquake the earth is very high is Padang City, West Sumatra Province. This city is located on the west coast of Sumatra Island and faces the Mentawai subduction zone directly, which is a source of megathrust earthquakes. Its geographical the causing Padang City to have level threat of earthquakes and high tsunami. Earthquake earth with a magnitude of Mw 7.6 which occurred on September 30, 2009 was one of the biggest ever hit this region. The earthquake was centered off the coast west coast of Sumatra at a depth approximately 71 km resulting in more from a thousand casualties, thousands building experience damage weight, and paralysing various facility education, health, government, and infrastructure transportation. Although earthquake the No trigger a tsunami because of the characteristics source the earthquake, the impact The resulting economy is very large and requires time for years for the recovery process. Research regarding the city of Padang shows that disturbance to infrastructure critical cause obstruction activity economy, distribution goods, services health and mobility public so that increase vulnerability social economy post-disaster. Threats earthquake the earth in West Sumatra returns occurred on February 25, 2022 when Regency West Pasaman and Regency Pasaman shaken earthquake earth with magnitude 6.1. Based on BMKG information, center earthquake located on land at depth about 10 km so produce shock strong feeling felt in some parts large area of West Sumatra. Earthquake the cause damage House residents, facilities education, places of worship, roads, bridges, networks irrigation, as well as facility service health. In addition to damage physical, thousands public must evacuate because their houses experienced heavy damage and are still in an area with potential for follow-up earthquakes.

Nagari Malampah, Tigo Nagari District, Regency Pasaman is one of the areas experiencing the biggest impact. Most of community in the village This hang his life in the sector agriculture, plantations, animal husbandry and trade scale small. Therefore that, damage land agriculture consequence earthquake earth in a way direct influence income House stairs. Government data area show that loss economy the biggest occurs on land corn with mark damage around Rp. 861 million, followed by land palm oil around Rp. 672 million, rice fields around Rp. 125 million, and losses in the sector livestock. Damage the No only reduce production agriculture, but also hinders distribution results harvest Because access road going to land agriculture experience damage. Condition This show that impact economy earthquake earth No only originate from disappearance asset productive, but also consequential disturbance system production and supply chain supply public rural areas. Decline income public post-earthquake is also influenced by damage infrastructure economy such as traditional markets, roads connector between hamlets, and facility trading other activities sell buy experience decline Because public more prioritize fulfillment need base compared to consumption goods secondary. As a result, turnover business small and trade local decrease so that slow down rotation economy Nagari. Condition the create effect chain in the form of decline Power buy society, increasing vulnerability economy House stairs, and potential increase number poverty if no balanced with rehabilitation program proper economics targets. Various research in the International Journal of Disaster Risk Reduction shows that economic recovery post-disaster needs a combination of infrastructure development, support to eye livelihood community, strengthening business micro, as well as improvement capacity mitigation based community so that society own greater resilience Good to future disasters.

LITERATURE REVIEW

1. Earthquake

Earthquake earth is one of the disaster natural the most frequent geology happening in the world and having significant impact to life humans, the environment, and development economy. Earthquake earth happen consequence release energy in a way suddenly inside crust the earth that produces wave seismic and causes vibrations on the surface earth. Most of earthquake the earth in the world is earthquake tectonics triggered by movement plate tectonics in subduction zones, faults active, as well as transform boundaries. In addition to earthquakes tectonics, earthquakes the earth can also caused by activity volcanic, landslide lower surface, as well as activity humans, even though frequency relatively more small compared to earthquake tectonic (Shearer, 2019). Indonesia is one of the countries with level activity seismic the highest in the world because be at the meeting three plate tectonics main, namely Indo-Australian Plate, Eurasian Plate, and Pacific Plate. Interactions third plate the forming a convergence zone known active as a triple junction and is part from the Pacific Ring of Fire route, that is area with concentration activity earthquake earth and mountains fire the largest in the world. The subduction process Indo-Australian Plate to lower Eurasian Plate along the west coast of Sumatra and south of Java causes accumulation voltage tectonics which are periodic released in form earthquake earth powerful big. In addition, the existence of various fault active, such as the Sumatra Fault, also increase potential occurrence earthquake shallow that can cause damage area in residential areas (Hall, 2012; Sieh & Natawidjaja, 2000). Characteristics earthquake the earth that occurred in a way suddenly and yet can predicted in a way appropriate making it one of the disaster with level high risk. Impact earthquake the earth is greatly influenced by magnitude, depth hypocenter, distance epicenter to area settlements, conditions geology local, density residents, as well as quality owned infrastructure an area. Earthquake earth powerful large scale incidents that occur in densely populated areas resident often causes damage buildings, casualties, disturbances to service public, as well as loss economy in a very large number. Therefore that, level risk earthquake earth No only determined by the size threat (hazard), but is also influenced by the level of vulnerability and capacity public in face disaster (capacity) (UNDRR, 2015).

Globally, earthquakes earth is one of the reason main loss economy consequence disaster nature. Besides destroying asset physical, earthquake the earth is also disturbing activity production, distribution, trade, education, and services health. Damage infrastructure transportation, network electricity, system communication, as well as facility public cause the recovery process need very large costs and long time. Various study show that impact economy earthquake earth can ongoing for many years, especially in developing countries that have capacity mitigation and rehabilitation that is still ongoing limited. Therefore that, reduction risk disaster through investment in infrastructure stand earthquake, system warning early, spatial planning based risks, as well as improvement preparedness public become the main strategy in reduce impact disaster

earthquake earth (Kousky, 2014; Hallegatte et al., 2019). In Sendai Framework for Disaster Risk Reduction 2015–2030, reduction risk earthquake earth No only focus on handling post-disaster, but also emphasizes importance mitigation, preparedness, strengthening governance, and development resilient infrastructure to disaster. Approach This put subtraction risk as an integral part of development sustainable so that capable protect life society, maintaining sustainability activity economy, as well as increase regional resilience against threat earthquake earth in the future (UNDRR, 2015).

2. Impact of Earthquakes

Earthquake earth is one of the disaster geology that has ability damage infrastructure physique in a fast and extensive way. The level of damage caused No only influenced by the magnitude of the earthquake, but also by the characteristics source earthquake, conditions geology local, quality construction quality, resident density, as well as preparedness level. In earthquake engineering knowledge, evaluation performance structure building based on the concept that every building must be designed to be capable of withstanding the earthquake burden in accordance with level danger seismic in the area. The performance-based seismic design approach emphasises that buildings must be free from damage after an earthquake, but must be capable of maintaining stability so that casualties can be minimised and the building's function can still be maintained or can be restored quickly (Moehle & Deierlein, 2004). The scientific basis for earthquake earth explained through the Elastic Rebound Theory put forward by Reid (1910). This theory explains that plate tectonic movement causes the accumulation of elastic strain energy in rocks along active faults. When the voltage the beyond strength rocks, energy released in a way suddenly in the form of seismic waves that cause shocks on the Earth's surface. The size response something building to shock influenced by various factors, such as earthquake intensity, distance to the epicentre, depth hypocenter, characteristics land, as well as building structure. Therefore, evaluation of building performance must consider aspects of geology, geotechnics and structural engineering structure in a way integrated to be able to increase societal safety and reduce the risk of damage to infrastructure (Chopra, 2020).

From the perspective subtraction risk disaster, the United Nations Office for Disaster Risk Reduction (UNDRR) introduced the concept of disaster-resilient infrastructure, namely infrastructure that is designed, built, operated, and maintained with consideration of disaster risk so that still capable operate function mainly when happen disturbance as well as can recover in relative time short after disaster. Resilient infrastructure No only covers building stand earthquakes, but also the transportation system, energy network, telecommunications, clean water supply, health facilities, as well as means of mutual education connected in support of social and economic community sustainability activities (UNDRR, 2015). In the Sendai Framework for Disaster Risk Reduction 2015–2030, development infrastructure is set as one of the priority main for reduce risk disaster globally. Framework Work the emphasize that investment in infrastructure stand disaster is part from development sustainable Because capable reduce casualties, reduce loss economy, speeding up the evacuation process, and strengthen capacity public in face disaster. Designed infrastructure based on the principle of resilience must have characteristics of robustness, redundancy, resourcefulness, and rapidity, namely being capable withhold disturbance, having system reserves, utilize source Power in a way effective, and recover with fast after disaster occurs (UNDRR, 2015). Damage to infrastructure consequence earthquake earth often causes an impact chain on various sectors of development. The damage to roads and bridges hinders the distribution of goods and mobility in society, while damage to electricity and telecommunications hinders activity, as well as public sector services. In the economic sector, disruptions to facility production and distribution cause declining household income, rising logistics costs, as well as slowing down local economic growth. Pearson and Pelling's (2015) research shows that investment in infrastructure tough give benefit economy term long Because capable of reducing rehabilitation costs, speeding up economic recovery, as well as increasing public resilience to disasters in the future. Therefore that, development infrastructure stand earthquake must be viewed as strategic support achievement development sustainable at a time strengthen resilience social, economic and environmental resilience in disaster-prone areas.

MATERIALS AND METHODS

Study This use type mixed method research (method mixed). The research that combines method quantitative. Population in study This is all over Head Families (KK) who live in Malampah Village and are affected by the earthquake in Pasaman Regency, which has 740 households. Research this own sample of 75 families with the snowball sampling technique. Data sources used are primary data and secondary data. This was conducted in Nagari Malapah, Pasaman Regency. This research was implemented to know the impact disaster earthquake earth for life public.

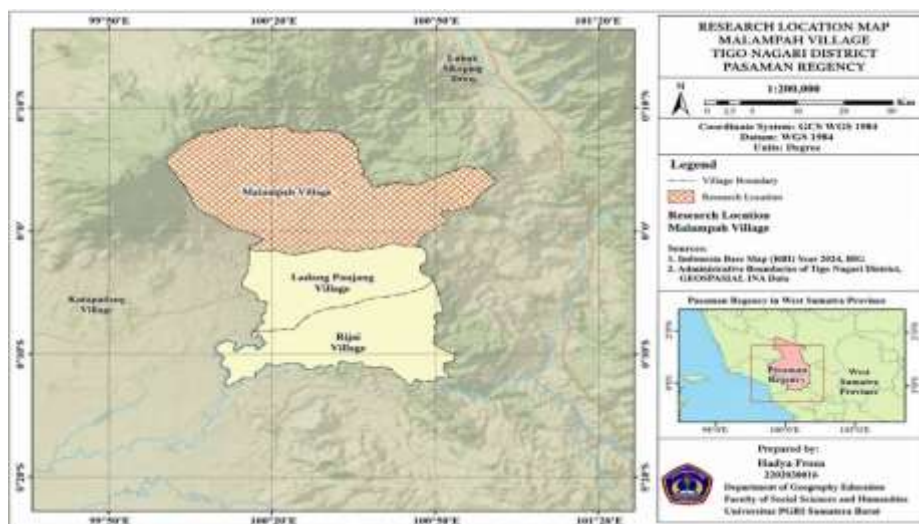


Figure 1. Research Location Map

Variable 1 uses Qualitative Analysis

Qualitative study is a method that emphasises understanding of a problem rather than solving a problem. Qualitative data analysis methods is method data processing deep with data from observations, interviews, and literature (Sekaran & Bougie, 2016). Analysis qualitative using: data collection, data reduction, data presentation, data extraction conclusion.

Variables 2 and 3 use quantitative analysis

Measurement scale in study: This study uses an interval measurement scale, namely the Likert scale. The Likert scale, according to Kinneer in Husein Umar (2009), is related scales with questions about attitudes toward something, for example, agree-disagree. Criteria Answer Weighting:

Table 1. Assessment Intervals

Choice Answer	Score Weight
Strongly Agree (SS)	4
Agree (S)	3
Disagree (TS)	2
Strongly Disagree (STS)	1

Research data analyzed use analysis descriptive with Achievement Level method for respondents (RAL). RAL analysis is used to know level achievements or level achievement answer respondents to every indicator and variable studied. The more tall RAL value, the more high level achievement of respondents to the variables studied.

RAL calculation is performed with the formula:

$$TCR = \sum_{i=1}^n (T_i \times SL_i)$$

Information:

RAL = Achievement Level Respondents

Ti = Total respondents or frequency of answers to the categories to -iii

Sli = Likert score for category to -iii (e.g. 1–5)

n = Number of category answers

$$\text{Index TCR} = + \frac{TCR}{Y} \times 100\%$$

Information:

RAL = Total score obtained

Y = Ideal score (maximum possible score achieved)

Table 2. Categories level of achievement respondents (RAL)

No	Category	Range (%)
1	Very Good	90-100
2	Good	8-90
3	Pretty good	70-79
4	Not good	55-69
5	Very Poor	1-54

RESULTS

Malampah Village's own topography is dominated by hills and plains, and the valleys stretch across several parts of its territory. Natural landscape the is characteristics general area of Regency Pasaman is located in the mountainous and hilly region of West Sumatra. The area's altitude varies. cause temperature air in Malampah Village to be relatively cool compared to the plains. In addition, this area has enough land fertile so it is very supportive activity agriculture and plantations which become source of livelihood for society. In some locations, there are rivers and tributaries functioning as a water source for need House ladder and irrigation agriculture. Hilly areas and still forests located around the village also plays a role important in guard balance environment as well as the availability of water sources. Meanwhile, a relatively small flat area is generally utilised as an area for settlements, rice fields, and general facilities. The diverse topography makes Malampah Village have good potential for the public.

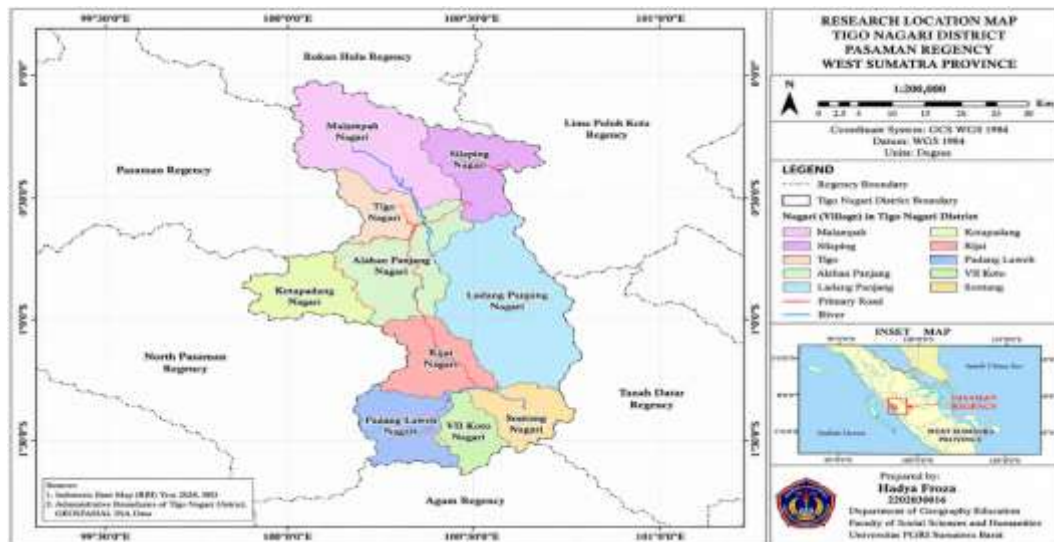


Figure 2. Administrative Map Study

1. Impact earthquake earth to eye search community in the Village Malampah Regency Pasaman

This study is also supported by qualitative data originating from results of interviews with informants. Interviews done For strengthen and explain results analysis about impact earthquake earth to economy community in Malampah Village. The results of interviews with informant served as follows. Based on the results of the interview study with Mrs FD, Secretary of the Malampah Village Head, Tigo Nagari District, on June 1, 2026: before the earthquake happened, I worked as Secretary of the Malampah Village Head. Apart from that, I also work as a farmer. After the earthquake, my income I reduce Because the garden, which is one of the sources of income experience damage. As a result of the earthquake, my garden decreased compared to before the disaster happened. Condition the cause I experience difficulty economy. Reduced income make I difficulty fulfil daily family needs, starting from need food until need children. In addition, my house also experienced it damage consequence earthquake. The impact of the earthquake we felt was very big. Not only that place damaged remains, but also our ability to fulfil family needs became very limited. To endure life during the recovery period, we utilised savings that are still there as well as accepted help from the government and society from various the area that comes help our village to condition return recover.



Figure 3. With Mrs FD as Secretary of the Malampah Village Head

The interview above is in harmony with Mrs SM's statement as a resident of Nagari Malampah Village who was affected by the June 2, 2026: before the earthquake earth, me Work as rice and corn farmers. After the earthquake, I still worked as a farmer, but also took a side job as a daily labourer because results decreased. Earthquake causing the rice fields to experience damage and channels irrigation disconnected, while our house also experienced Lots cracks consequence earthquake. Due to the consequences of the condition, the results harvest No Again as much as before the earthquake. To fulfil my family's needs, I was forced to look for additional income. I experienced a decline compared to before the earthquake. I did No lost work as farmers, but business activity is severely hampered. The impact of the earthquake to eye livelihood I am very significant. Right now I Keep going try repairing rice fields, planting back, and working as a labourer daily while waiting for results. During the recovery period, we persevered in life with utilised savings that are still there as well as help from the government and society from outside the area that comes help our village to condition return getting better.



Figure 4. With Mrs SM as the public village of Malampah affected by the earthquake

Table 3. Recapitulation Changes in People's Livelihoods Before and After Earthquake

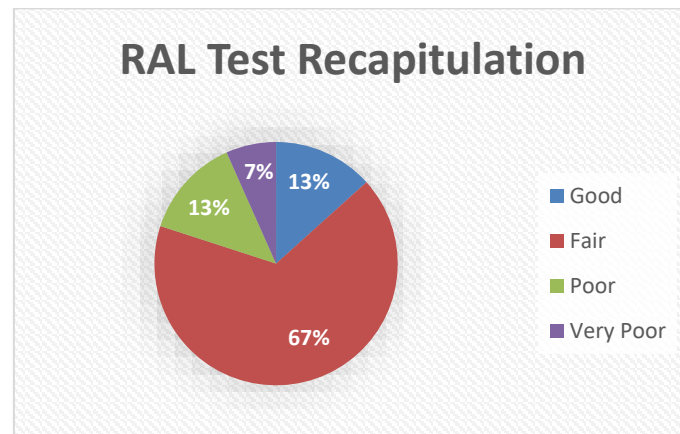
No	Livelihood Before Earthquake	Livelihood After Earthquake	The Impact That Occurred
1.	Farmer	Farmers and workers daily	Yields decrease; land and irrigation are damaged, so that part public look for additional work
2.	Planters	Planters and laborers farmer	Production garden decrease, so income is reduced, and society is working in other people's gardens
3.	Trader	Trader with turnover decrease	Activity sell buy decrease Because Power buy public decrease after the earthquake
4.	Laborer daily	Labourer daily No still	Chance Work reduce Because activity development activities and business had stopped
5.	Housewife helpful ladder business family	Help business family and looking for additional income	Several families do side jobs to fulfil needs

2. Impact earthquake earth to income community in the village malampah Regency Pasaman

RAL results on the solidarity social indicator show that the people of Malampah Village have a high level of solidarity after occurrence earthquake Earth. Solidarity becomes important social capital to accelerate the rehabilitation and reconstruction process, while at the same time strengthening public resilience in the face of various disaster impacts.

Table 4. RAL Test Recapitulation

No	Strongly Disagree	Disagree	Agree	Strongly Agree	Total of Respondents	Respondent Achievement Level	%	Respondent Achievement Level Criterly
1	0	36	30	9	75	198	66	Poor
2	0	14	54	7	75	218	72,6	Fair
3	1	31	37	6	75	198	66	Poor
4	0	9	58	8	75	224	74,66	Fair
5	14	28	31	2	75	125	41,66	Very Poor
6	0	7	28	40	75	258	86	Good
7	0	7	53	14	75	229	76,33	Fair
8	0	4	50	21	75	242	80,66	Good
9	0	9	48	18	75	234	78	Fair
10	0	13	44	18	75	230	76,66	Fair
11	0	16	36	23	75	232	77,33	Fair
12	0	15	35	25	75	235	78,33	Fair
13	0	5	60	10	75	230	76,66	Fair
14	1	12	42	20	75	231	77	Fair
15	0	11	42	22	75	236	78,66	Fair



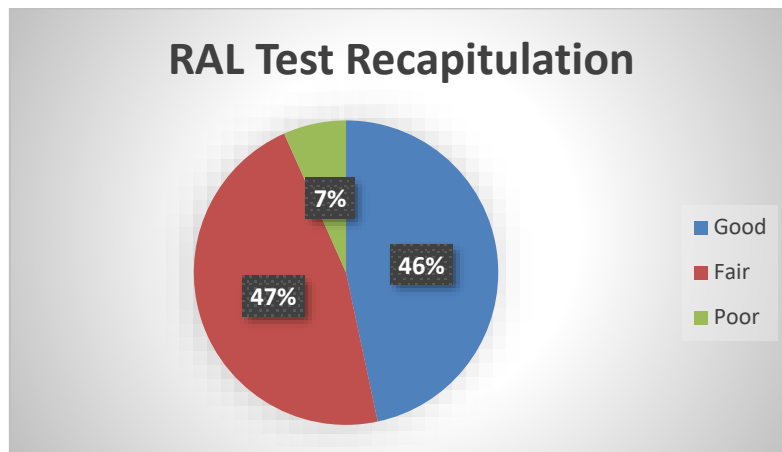
Variables impact the earthquake earth to income of the community in Nagari Malampah, Regency Pasaman analysed based on three indicators, namely low income, moderate, and high income. The discussion started with the low-income indicator, which is analyzed use Achievement Level method (RAL). Analysis: This aim For know to what extent respondents feel decline income as impact from earthquake earth. As for the results of the RAL analysis on indicators income low can be seen in the following table. Overall, the average RAL value on the indicator income low show that, on the indicator income Still there are still necessary aspects get attention, which illustrates the condition of respondents' income post-earthquake, which is still relatively low. In terms of the whole, the entire grain of questions on the indicator income has RAL values above 75%. This indicates that many respondents evaluate their income they be at a sufficient level after occurrence earthquake. Although however, still there is difference level achievements in each grains questions that show that the recovery process economy public Not yet fully evenly. Overall, the average RAL value on the indicator of income tall shows that condition economy public start experience recovery, but the recovery process the Not yet evenly distributed. Some of the community has capable increase in income, whereas part other Still face constraints in men

3. Impact of the earthquake earth to life social community in the village malampah Regency Pasaman

Impact of the earthquake earth to life social community in Nagari Malampah, Pasaman Regency, especially on the indicators of social interaction between citizens, analysed using Respondents Achievement Level (RAL). RAL analysis is used to know the level of evaluation of respondents to every statement submitted in the questionnaire about the condition of social after occurrence earthquake Earth. The results of the RAL calculations are obtained from a comparison between the scores obtained and the maximum, then multiplied by 100 per cent so that they produce a category evaluation. The results of the RAL analysis on the indicators of social interaction between residents are presented in Table 5.

Table 5. RAL Test Recapitulation

No	Strongly Disagree	Disagree	Agree	Strongly Agree	Total of Respondents	Respondent Achievement Level	%	Respondent Achievement Level Criterly
1	12	5	40	29	75	247	82,33	Good
2	2	54	51	17	75	233	77,66	Fair
3	0	4	54	16	75	234	78	Fair
4	2	4	49	20	75	237	79	Fair
5	1	4	51	19	75	238	79,33	Fair
6	1	4	59	11	75	230	76,66	Fair
7	3	21	42	9	75	207	69	Poor
8	1	6	56	12	75	229	76,33	Fair
9	1	2	61	11	75	232	77,33	Fair
10	1	3	50	21	75	241	80,33	Good
11	0	3	44	28	75	250	83,33	Good
12	0	3	32	40	75	262	87,33	Good
13	0	1	45	20	75	244	82,33	Good
14	2	1	44	28	75	248	82,66	Good
15	1	1	40	33	75	255	85	Good



To know the impact of the earthquake on the social community in Nagari Malampah, Regency Pasaman, especially on the indicators of social interaction between residents, an analysis was carried out using Total Achievement Respondents (RAL). RAL analysis is used to know the level of evaluation of respondents to every statement submitted in the questionnaire about the condition of social after occurrence earthquake Earth. The results of the RAL calculations are obtained from a comparison between the scores obtained and the maximum, then multiplied by 100 per cent so that they produce a certain category evaluation. In a way Overall, RAL results on the interaction of social relationships between residents show that the people of Malampah Village have good social relationships after the disaster. The interaction that is established through communication, mutual help, and work The same become important social capital in supporting the recovery process of public life post-earthquake. Overall, the RAL results showed that the participation of the people of Malampah Village in social activities post-earthquake is in the category good. This shows that although disasters have an impact to condition economy and social conditions, the spirit to participate in social still awake as a form of support towards the recovery process together. In a way Overall, RAL results on indicators of social solidarity show that the people of Malampah Village have a high level of solidarity after occurrence earthquake Earth. Solidarity becomes important social capital to accelerate the rehabilitation and reconstruction process, while at the same time strengthen resilience public in face various impact disaster.

DISCUSSION

Earthquake earth is disaster geology that not only result in damage to physical buildings and infrastructure, but also provides wide- ranging impact to sustainability of livelihoods, income and social life in communities. Impact the generally felt more by communities that depend on agriculture, plantations, fisheries, animal husbandry and micro business sectors because these sectors are greatly influenced by environmental conditions as well as the existence of infrastructure support. Damage land productive, network irrigation, roads, markets and facilities distribution cause activity economy public disturbed, so that the ability House ladder in fulfil life needs declines. According to Hallegatte (2014), disaster natural cause loss economy through damage to productivity, disruption of production processes, decline in productivity, and obstruction activity trade in the end reduces society's welfare. One of the impact main earthquake earth is disturbance eye livelihood community. In rural areas, damage to land, agriculture, plantations and animal husbandry causes production to decrease so that source income main House ladder follow reduced. In addition, the damage to roads, bridges and facilities transportation hinder distribution results agriculture towards the market so that enlarge loss the economy experienced society. For micro businesses and trade, damage to business buildings, disruption of the supply chain, as well as a decline Power buy public cause activity economy walk not optimal. Published research in the International Journal of Disaster Risk Reduction shows that lost livelihood is one of the impact term long the most difficult disaster restored, especially in communities that are highly dependent on natural power sources and do not yet have diversified income sources (Chowdhury & Parida, 2023).

Disturbance to their livelihood in a direct way has implications for declining household income. Reduced agricultural production, declining trade activity, loss of work, and increasing cost life post-disaster make the economy public become the more vulnerable. At the same time, the house stairs are also a must emit cost addition For repair house, replacing damaged assets, meeting health needs, as well as financing education for the family. As a result, many House ladder experience decline Power buy, decreased savings, even forced to sell productive assets or borrow funds to maintain their sustainable life. UNDRR (2015) emphasised that loss economy consequence disaster No only measured from size damage physical, but also from disappearance chance get income, increasing vulnerability economy House stairs, and slowing down the recovery process economy society. Therefore, recovery post-disaster requires a strategy that is not only focused on the development of infrastructure, but also on livelihood recovery through business capital assistance, rehabilitation of productive assets, and the creation of new work opportunities. In addition to the impact economy, earthquake the earth also affect society. In the emergency phase, society generally experiences disturbance because public attention is focused on self-rescue, family, and fulfilling basic needs. However, in most cases, disasters precisely strengthen social solidarity through increasing cooperation, working together, and caring between members of society. Various forms of assistance, such as development House meanwhile, distribution logistics, food provision, as well as support psychosocial, carried out in a way together by the community and various institutions. Conditions show that social capital is one of the important factors in speeding up the recovery process post-disaster.

According to Putnam (2000), social capital consists of trust, social networks, and norms of reciprocity, which are sources of power capable power increase capacity public in face various crises, including disaster nature. Communities that have level trust and work the same height tend more fast recover Because capable mobilize source Power in a collective way, as well as strengthening mechanisms to help each other. The research results of Schobert et al. (2023) in the International Journal of Disaster Risk Reduction also show that social support and networking community play a role important in increase ability of society to adapt, reducing psychological pressure, as well as speeding up recovery economy

House ladder after disaster. In the Sendai Framework for Disaster Risk Reduction 2015–2030, community resilience is seen as a combination of economic, social, institutional and infrastructure in face of disaster. Therefore that, the effort subtraction risk earthquake earth must done in a way integrated through development infrastructure stand earthquake, strengthening eye livelihood society, improvement capacity institutional, as well as social capital development based community approach the No only capable reduce loss economy, but also strengthens resilience social public so that the recovery process post-disaster can ongoing more fast, inclusive, and sustainable.

CONCLUSION

Impact earthquake earth to eye livelihood public show that disaster earthquake earth has cause enough change big to eye livelihood the people of Nagari Malampah. Based on results interview, damage land agriculture, plantations, and means support activity economy cause part public lost eye livelihood main or experience decline chance work. Conditions the push public for look for work additionally, to be laborer daily, or do work side job as a strategy for fulfil need life post-disaster. Impact earthquake earth to income public show that condition income public experience decline, although start shows the recovery process. On the indicator income low, still there is grains statement that obtains RAL value of 41.66% (very low) good, whereas indicator other is in the category not enough Good until Enough Good with value of 66.00%–74.66%, which indicates Still existence communities experiencing difficulty economy post-earthquake. Furthermore, on the indicators income medium, all RAL values are in the range of 76.33%–86.00%, so that including category Enough Good until good. This is show that part public start capable restore condition the economy, even though recovery the Not yet evenly. Meanwhile that, indicator income tall own RAL value between 76.66%–78.66% with category Enough good, which indicates that only part the community that has capable increase or maintain his income after disaster, whereas part other Still face constraint consequence damage land, disturbance activity econom, and the reduction chance work. Impact earthquake earth to life social public show that life social the people of Malampah Village still awake with good. The results of the RAL analysis on the indicators interaction social is in the range of 77.66%–82.33%, which indicates that connection social, communication, and work the same between residents is in the category good. Indicator participation in activity social own RAL value of 69.00%–79.33%, which indicates that public Still active follow activity social although there is part small community whose participation decrease because still focused on recovery condition economy and place stay. Next, the indicator solidarity social get RAL value of 77.33%–87.33%, which is included category good. This result show that public have a sense of togetherness, caring and a high spirit of mutual cooperation in help fellow during the recovery process post-disaster.

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REFERENCES

- 1) Chopra, A. K. (2020). *Dynamics of Structures: Theory and Applications to Earthquake Engineering* (5th ed.). Pearson.
- 2) Chowdhury, J.R., & Parida, Y. (2023). Flood shocks and post-disaster recovery of households: An empirical analysis from rural Odisha, India. *International Journal of Disaster Risk Reduction*, 97, 104070.
- 3) Hall, R. (2012). Late Jurassic–Cenozoic reconstructions of the Indonesian region and the Indian Ocean. *Earth-Science Reviews*, 113(1–2), 1–24.
- 4) Hallegatte, S., Rentschler, J., & Rozenberg, J. (2019). *Lifelines: The Resilient Infrastructure Opportunity*. World Bank.
- 5) Hallegatte, S. (2014). *Natural Disasters and Climate Change: An Economic Perspective*. Springer.
- 6) *International Journal of Disaster Risk Reduction – Earthquakes, fear of failure, and wellbeing: An insight from Minangkabau entrepreneurship* (2020).
- 7) *International Journal of Disaster Risk Reduction – The stability and evolution of risk attitudes and time preferences after a disaster* (2022).
- 8) Kousky, C. (2014). Informing adaptation to climate: A review of the economic costs of natural disasters. *Annual Review of Resource Economics*, 6, 75–97.
- 9) Moehle, J. P., & Deierlein, G. G. (2004). A framework methodology for performance-based earthquake engineering. *Proceedings of the 13th World Conference on Earthquake Engineering*.
- 10) Pearson, L., & Pelling, M. (2015). The UN Sendai Framework for Disaster Risk Reduction 2015–2030: Negotiation process and prospects for science and practice. *Journal of Extreme Events*, 2(1), 1571001.
- 11) Putnam, R.D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster.
- 12) Rahman et al. (2022). Evaluating the Interdependencies of Infrastructure Critical Systems during Earthquake Event: A Case Study for Padang City.
- 13) Reid, H.F. (1910). *The Mechanics of the Earthquake*. Carnegie Institution of Washington.
- 14) Schobert, M., Orru, K., Gabel, F., et al. (2023). The three A's of social capital in crises: Challenges with the availability, accessibility and activatability of social support. *International Journal of Disaster Risk Reduction*, 92, 103704.
- 15) Shearer, P. M. (2019). *Introduction to Seismology* (3rd ed.). Cambridge University Press.
- 16) Sieh, K., & Natawidjaja, D.H. (2000). Neotectonics of the Sumatran fault, Indonesia. *Journal of Geophysical Research: Solid Earth*, 105(B12), 28295–28326.
- 17) United Nations Office for Disaster Risk Reduction (UNDRR). (2015). *Sendai Framework for Disaster Risk Reduction 2015–2030*.
- 18) Zhang et al. (2022). Economic Ripple Effects of Individual Disasters and Disaster Clusters.