



Do flood-affected Communities Express a Desire to Migrate or not?

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Abstract. *The study investigates migration intentions and reasons why residents prefer to remain rather than relocate in flood-prone coastal rural areas of Pekalongan Regency, Indonesia. An Exploratory mixed-method approach was employed, involving quantitative analysis of 218 respondents using descriptive statistics and cross tabulation, complemented by in-depth interviews with ten purposively selected informants. The findings reveal that only 20% respondents expressed an intention to migrate despite experiencing persistent environmental degradation and economic hardship. Longer residence, participation in community adaptation, strong social networks, road accessibility, and economic lossess were associated with migration intentions; however, these environmental and infrastructural constraints did not necessarily translate into a greater willingness to relocate, as most affected households preferred to remain. Qualitative findings indicate that loyalty to place, strong neighborhood bonding, asset ownership, and livelihood continuity are the primary reasons for staying. The results suggest that migration is considered a last-resort adaptation strategy, while in-situ adaptation remains the preferred response. Understanding why communities choose to remain in harzard-prone areas is essential for designing climate adaptation strategies that respect local values, reduce the risk of involuntary displacement, and contribute to Sustainable Development Goal (SDG) 13 (Climate Action) and SDG 11 (Sustainable Cities and Communities), particularly in vulnerable social regions of Southeast Asia.*

Keywords: Coastal Floods; Rural; Adaptation; Migration; Indonesia

1. Introduction

Coastal areas worldwide, particularly in Southeast Asia, are increasingly exposed to sea levels and recurrent coastal flooding as a consequence of climate change (1,2). These environmental changes threaten the sustainability of coastal settlements by disrupting livelihoods, damaging infrastructure, and increasing the vulnerability of local communities. Indonesia, as the world's largest archipelagic country, is particularly vulnerable because many coastal populations depend directly on natural resources and occupy low-lying areas susceptible to tidal flooding. Flood disasters accounted for approximately 38.99% of all natural hazards recorded in Indonesia until 2015 (3). The phenomenon disproportionately affects developing countries with high poverty rates, including many regions in Southeast Asia (4). As tidal flooding becomes more frequent and severe, relocation has increasingly been recognized as one possible adaptation strategy for households facing persistent environmental risks (5–7). Consequently, understanding migration response to climate-induced coastal hazards has become an important issues for both environmental research and climate adaptation policy.

From the perspective of migration theory, relocation is often considered a rational adaptation strategy when environmental degradation reduces household welfare (8,9). Individuals are generally expected to migrate when the expected benefits of moving exceed the economic and social costs of remaining in hazard-prone areas (10). In the context of climate change, migration may offer opportunities for improving livelihoods, migration may offer opportunities for improving livelihoods, accessing new employment, and reducing exposure to environmental risks (11). However, migration decisions are rarely determined solely by economic relationships, cultural identity, livelihood dependence, and uncertainty regarding destination areas frequently encourage households to remain despite worsening environmental conditions (12,13). Consequently, remaining in place represents an important form of climate adaptation that deserves equal attention alongside migration.

Previous studies have examined community adaptation and migration in flood-prone coastal areas (14–17). Nevertheless, most have primarily focused on adaptation practices or the determinants of migration. Comparatively little attention has been given to understanding why many households deliberately choose to remain in environmentally degraded areas despite experiencing repeated tidal flooding. This perspective is particularly important because remaining in place represents one of the most common adaptation strategies adopted by vulnerable coastal communities. Understanding the reasons behind this decision is essential for explaining the complexity of household responses to environmental change.

In contrast to the study conducted by (18), this research adopts an exploratory mixed-method approach that combines quantitative analysis of migration intentions with qualitative exploration of the underlying motivations for remaining in flood-prone areas. This approach enables a more comprehensive understanding of migration decisions by integrating measurable socioeconomic and environmental factors with the emotional and social dimensions that cannot be adequately captured through quantitative analysis alone. Furthermore, (19) highlighted that studies examining migration decisions under natural hazards remain relatively limited in Indonesia, particularly those investigating why communities choose not to migrate.

Therefore, this study aims to investigate the factors associated with migration intentions and to explore why households prefer to remain in flood-prone coastal areas of Pekalongan Regency, Indonesia. The findings contribute to the growing literature on climate-induced migration by demonstrating that migration is not always the preferred adaptation strategy. Instead, emotional attachment, social bonding, and livelihood security frequently outweigh environmental pressure in shaping household decisions. Understanding why communities choose to remain in flood-prone areas is essential for developing climate adaptation strategies that respect local values, strengthen community resilience, reduce the risk of involuntary displacement, and support the achievement of sustainable development goal SDG 13 (Climate Action) and SDG 11 (Sustainable cities and Communities, particularly in vulnerable coastal regions of southeast Asia).

2. Methods

The study was conducted in Depok Village and Blacanan Village. This study was conducted in Depok Village and Blacanan Village, Siwalan District, Pekalongan Regency, Central Java Province, Indonesia (Figure 1). The study area is located approximately 3 km from the coastline and represents one of the most severely affected tidal-flood regions in

Indonesia. Fieldwork was conducted over three months from October to December 2024, followed by an additional field visit in May 2025 to verify and complement the collected data.

Pekalongan Regency experiences one of the highest rates of land subsidence in Indonesia, reaching approximately 10–17 cm per year, while sea level continues to rise at approximately 5 mm annually (20). Although the Indonesian government has implemented coastal dike construction in several areas, Siwalan District has not yet benefited from these structural adaptation measures (21,22). Consequently, Depok and Blacanan villages experience recurrent tidal flooding with water depths ranging from 20 cm to 90 cm during extreme events (23–25). These characteristics make the study area appropriate for investigating migration intentions and adaptation behaviour among flood-affected communities.

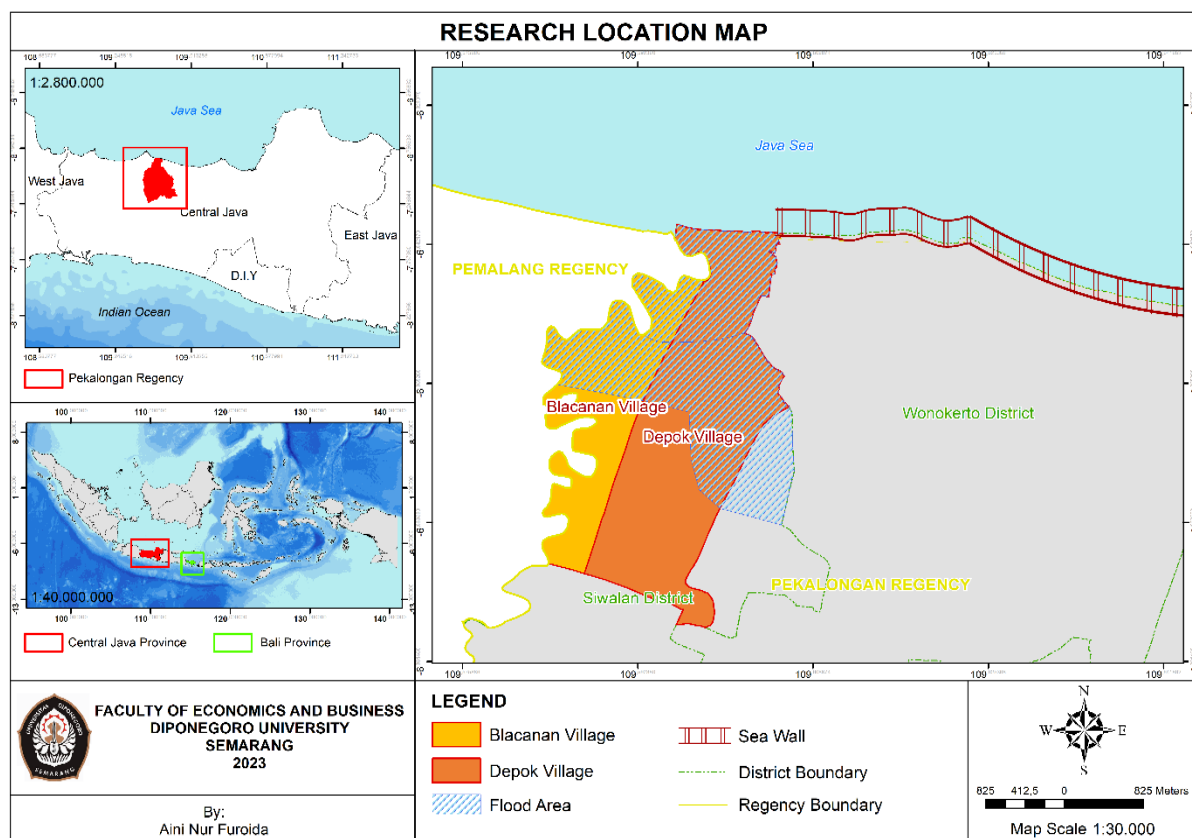


Figure 1. Map of Study

Source: Author, 2025

2.1. Data Collection

The study employed an exploratory mixed-method design by combining household surveys with in-depth interviews. Quantitative data were collected using structured questionnaires administered through face-to-face interviews, while qualitative data were obtained through semi-structured interviews with key informants.

Prior to data collection, permission was obtained from the village governments. During the field survey, researchers were accompanied by village officials to facilitate communication with residents. Participation was voluntary. All respondents were informed about the objectives of the research before the interview commenced, and verbal informed consent was obtained from every participant. Respondents who declined participation were

not interviewed and were replaced by other eligible participants. To protect privacy, all participants were anonymised during data processing and reporting.

There are two types of participants :

Respondents: The minimum sample size was initially calculated using the (26) formula with a 95% confidence level, an expected population proportion (P) of 50%, and a precision level of 10%, resulting in a minimum required sample of 96 respondents. However, this study successfully collected data from 218 respondents, consisting of 116 respondents from Depok Village and 102 respondents from Blacanan Village. The larger sample size was intentionally adopted to improve the representativeness of the survey, increase the reliability of cross-tabulation analysis, and reduce sampling error. Because the exact number of households affected by tidal flooding changes over time, obtaining a larger sample than the statistical minimum was considered appropriate for strengthening the robustness of the descriptive findings.

The study villages were purposively selected because both have experienced chronic tidal flooding for many years and represent the most severely affected coastal communities in Siwalan District. Within each village, respondents were selected through household visits targeting residents who had experienced tidal flooding and had lived in the village long enough to understand its impacts. Data collection continued until the predetermined survey target was achieved.

Informants: Qualitative informants were selected using purposive sampling to obtain individuals possessing extensive knowledge regarding community responses to tidal flooding. The criteria are community leaders and local government officials (village) who understand the flood situation well. Informants' Depok village are (1) person the head of the village government, (1) person the secretary of the village government, (2) people) the heads of the Neighborhood Association, (1) person a community activist. Informants' Blacanan village (1) person the head of the village government, (1) person the secretary of the Blacanan village government, (2) person the head of the Neighborhood Association, (1) person a community activist. Data from in-depth interviews with these informants were used to explain why people chose to stay rather than migrate. In-depth interviews were necessary because the decision to stay when affected by floods is often not entirely rational, and therefore, a deeper exploration of the reasons was needed.

2.2. Data Analysis

Data analysis was carried out using an exploratory mixed-method technique (27), in which quantitative findings were first analysed and subsequently elaborated through qualitative evidence (see Figure 2).

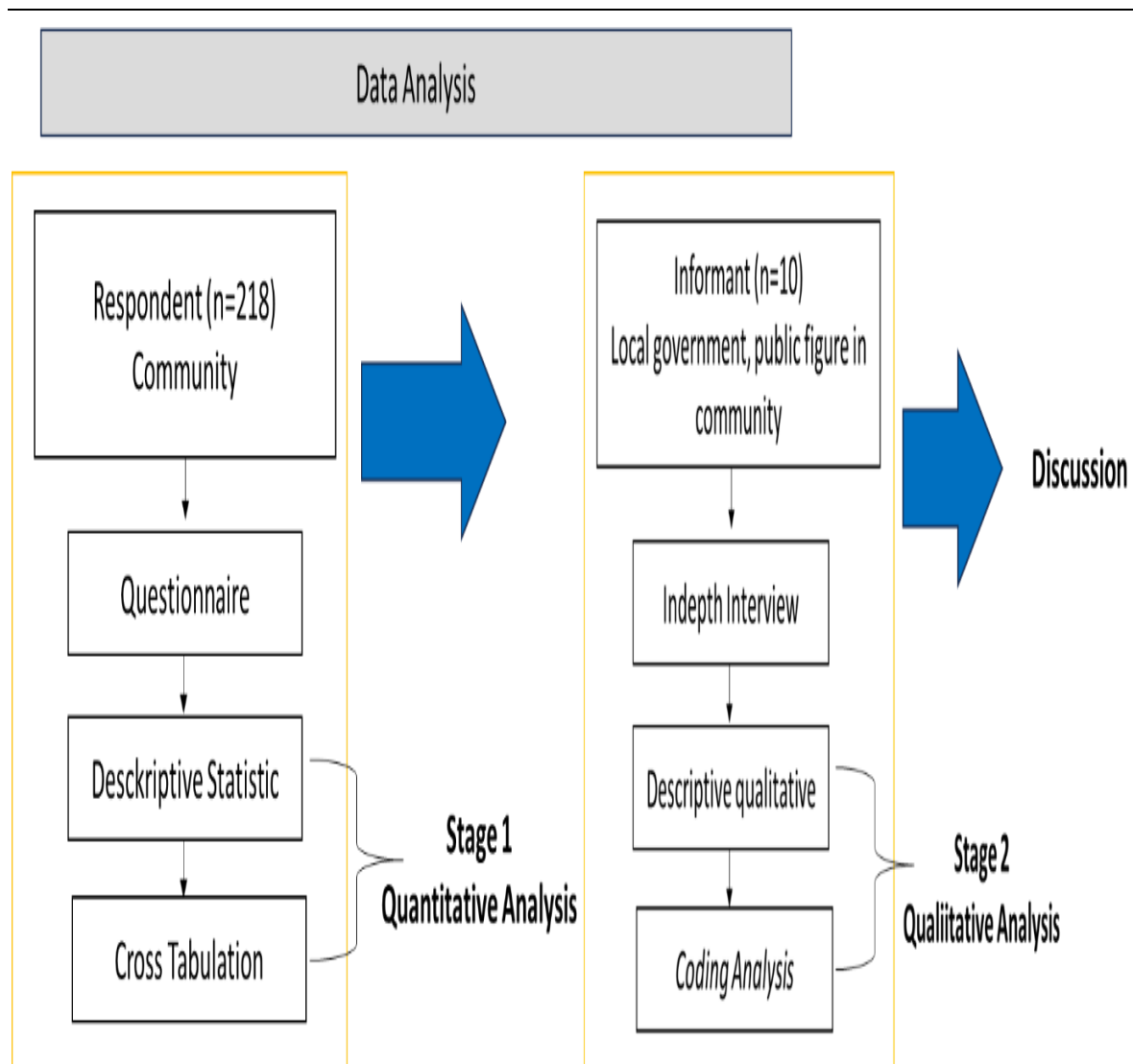


Figure 1. Stages of Analysis

Quantitative analysis consisted of descriptive statistics and cross-tabulation using IBM SPSS Statistics version 26. Descriptive statistics summarised respondents' socioeconomic characteristics and perceptions through frequencies, percentages, and mean values. Cross-tabulation analysis was used to explore the association between migration intentions and environmental, infrastructural, emotional, and economic variables (see Table 1). Because the objective of the quantitative analysis was exploratory rather than causal inference, cross-tabulation was considered appropriate for identifying patterns of association between variables.

Qualitative interview data were analysed using thematic analysis. Interview transcripts were coded to identify recurring themes explaining why households preferred to remain in flood-prone areas. Emerging themes were subsequently integrated with quantitative findings to provide a more comprehensive understanding of migration intentions and staying behaviour among flood-affected communities.

Table 1. Research Variables		
Aspect	Variabel	Measurement
Migrate	Desires to migrate	1= Yes 2 = No
Environment Condition	Comfortable	1= Good 2=Netral 3=Poor
	Easy of Activities	
	Tidal Water Quality	
	Health Risk	
	Safe for Children	
Infrastructure Condition	Encourage Criminal	1=Joint 0= Not Join 1=< 15 2=16-30 3=> 31
	Access in-out Village	
	Road Condition	
	Access Water	
Emotional Attachment	Access Electricity	
	Joint Community Group/ Association	
	Length of Stay (Year)	
Economic Losses (IDR/year)	Accumulated calculation of the cost of illness, averting behavior, and loss of earnings	

3. Results and Discussion

3.1. The Affected Tidal Flood

3.1.1. Surrounding Environment Conditions Affect Floods

The findings reveal that the majority of respondents preferred to remain in their villages despite prolonged exposure to tidal flooding. Of the 218 respondents, 173 (79.4%) expressed no intention to migrate, while only 45 (20.6%) indicated a desire to relocate. This finding is consistent with (15), who reported that a substantial proportion of residents in flood-prone areas of Demak Regency, Indonesia, also preferred to remain in their communities. These findings demonstrate that exposure to environmental hazards does not necessarily lead directly to migration intentions.

As shown in Table 2, 179 respondents (82.1%) reported feeling comfortable living in their current environment, and 139 of them preferred not to migrate. This finding appears paradoxical considering the persistent tidal flooding and the physical deterioration of residential environments documented in Figures 3–5. The photographs illustrate inundated residential areas, damaged household structures, and standing water inside and around houses. Nevertheless, most residents have adapted to these environmental conditions and continue to perceive their villages as acceptable places to live.

Table 2. Migration Intention on Environmental Conditions (n=218)

A. Comfortable	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
Comfortable	40	18,3%	139	63,8%	179	82,1%
Doubt-Doubt	1	0,5%	7	3,2%	8	3,7%
Uncomfortable	4	1,8%	27	12,4%	31	14,2%
Total	45	20,6%	173	79,4%	218	100,0%
B. Easy of Activities	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
Easy	4	1,8%	33	15,1%	37	17,0%
Doubt-Doubt	1	0,5%	8	3,7%	9	4,1%
Not Easy	40	18,3%	132	60,6%	172	78,9%
Total	45	20,6%	173	79,4%	218	100,0%
C. Tidal Water Quality	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
Cleaness, Not Smell	26	11,9%	90	41,3%	116	53,2%
Doubt-Doubt	7	3,2%	17	7,8%	24	11,0%
Not Cleaness, Smell	12	5,5%	66	30,3%	78	35,8%
Total	45	20,6%	173	79,4%	218	100,0%
D. Health	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
Not Risky	6	2,8%	31	14,2%	37	17,0%
Doubt-Doubt	0	0,0%	8	3,7%	8	3,7%
Risky	39	17,9%	134	61,5%	173	79,4%
Total	45	20,6%	173	79,4%	218	100,0%
E. Encourage Criminal	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
Safe	35	16,1%	155	71,1%	190	87,2%
Doubt-Doubt	1	0,5%	5	2,3%	6	2,8%
Insecure	9	4,1%	13	6,0%	22	10,1%
Total	45	20,6%	173	79,4%	218	100,0%

(a) Conditions Around the Blacanan Village House



(b) Conditions Around Depok Village House



Figure 2. Environment Conditions



Figure 3. Conditions Entire The House Depok Village

Note : (a) the condition of the bedroom with a permanent puddle, (b) the condition of the kitchen with a puddle that only recedes for approximately 4 hours, (c) the condition of the bedroom with a puddle that only recedes for approximately 4 hours (d) the condition of the living room puddle that only recedes for approximately 4 hours (e) the condition of the kitchen with a puddle that only recedes for approximately 4 hours (f) the condition in the house with a permanent puddle.



Figure 4. Condition entire house Blacanan Village

Note: (a) the condition of the bedroom with a raised floor, (b) the condition of the bedroom with a damaged floor that has been razed to the ground, (c) the condition of the bedroom with a puddle that has never receded for almost two years (d) the condition of the kitchen with a dirt floor (e) the condition of the living room, the floor of the house has been elevated (f) the front of the house is built embankment.

A particularly important finding concerns the ease of conducting daily activities. Table 2 shows that 172 respondents (78.9%) reported difficulties in carrying out their activities because of tidal flooding. However, among these respondents, 132 (76.7%) preferred not to migrate, while only 40 (23.3%) expressed migration intentions. Therefore, limited daily activities should not be interpreted as a factor that directly increases migration intentions. Instead, the results indicate that substantial disruptions to daily activities coexist with a strong preference to remain in place.

This pattern highlights the complexity of household responses to environmental hazards. Although tidal flooding disrupts mobility and daily activities, these difficulties alone are insufficient to encourage most households to relocate. Residents may perceive migration as involving greater social and economic costs than remaining and adapting to recurrent flooding. Thus, environmental hardship should not automatically be interpreted as a migration push factor without considering social relationships, place attachment, livelihood dependence, and adaptive capacity.

Similar patterns can be observed in respondents' perceptions of health risks. A total of 173 respondents (79.4%) perceived health risks associated with tidal flooding, yet 134 of them preferred not to migrate. Furthermore, 190 respondents (87.2%) perceived their villages as relatively safe from crime. These findings indicate that environmental health risks coexist with other considerations that encourage households to remain.

The findings demonstrate that migration decisions cannot be explained solely by the severity of environmental conditions. Households experiencing recurrent flooding may develop coping mechanisms and adaptation strategies that reduce the perceived necessity of relocation. Local social networks, livelihood opportunities, informal support systems, and familiarity with environmental hazards may contribute to residents' willingness to remain despite objectively difficult living conditions.

Figures 3–5 illustrate the environmental conditions experienced by residents in Depok and Blacanan villages. These figures show standing water inside residential buildings,

elevated floors, damaged household structures, and physical adaptations undertaken by residents. Rather than immediately abandoning their homes, households have implemented various adjustments to continue living with recurrent tidal flooding.

These findings suggest that the relationship between environmental degradation and migration intentions is not linear. Exposure to environmental risks may increase household vulnerability, but migration decisions remain mediated by social, economic, and emotional considerations (28). Consequently, understanding migration intentions requires examining not only environmental pressures but also the mechanisms that enable communities to remain in hazard-prone areas.

Table 1. Migration Intention on Infrastructure Conditions

A. Access in-out Village	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
easy	18	8,3%	67	30,7%	85	39,0%
Doubt-Doubt	0	0,0%	6	2,8%	6	2,8%
Difficulte	27	12,4%	100	45,9%	127	58,3%
Total	45	20,6%	173	79%	218	100,0%

B. Road Condition	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
Good	7	3,2%	15	6,9%	22	10,1%
Doubt-Doubt	0	0,0%	6	2,8%	6	2,8%
Poor	38	17,4%	152	69,7%	190	87,2%
Total	45	20,6%	173	79%	218	100,0%

C. Access Water	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
Easy	33	15,1%	144	66,1%	177	81,2%
Doubt-Doubt	0	0,0%	1	0,5%	1	0,5%
Poor	12	5,5%	28	12,8%	40	18,3%
Total	45	20,6%	173	79%	218	100,0%

D. Electricity	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
Easy	42	19,3%	164	75,2%	206	94,5%
Doubt-Doubt	1	0,5%	2	0,9%	3	1,4%
Poor	2	0,9%	7	3,2%	9	4,1%
Total	45	20,6%	173	79%	218	100,0%

The results presented in Table 3 demonstrate a similar pattern regarding infrastructure conditions. Although many respondents experienced difficulties related to village accessibility and road conditions, the majority continued to prefer remaining in their current locations.

A total of 127 respondents (58.3%) reported difficulties accessing and leaving their villages, while 190 respondents (87.2%) perceived road conditions as poor. Nevertheless, 100 of the respondents experiencing accessibility difficulties and 152 of those reporting poor road conditions expressed no intention to migrate. These findings further demonstrate that inadequate infrastructure does not automatically lead households to consider relocation.

At first glance, these results appear counterintuitive because inadequate infrastructure is generally expected to increase migration pressure. However, several explanations may account for this pattern. Long-term residents may have developed adaptation strategies that enable them to cope with deteriorating infrastructure. Households may also rely on local social networks and community-based initiatives to overcome accessibility problems caused by tidal flooding.

Furthermore, access to basic services remains relatively adequate. As shown in Table 3, 177 respondents (81.2%) reported relatively easy access to water, while 206 respondents (94.5%) reported adequate access to electricity. The continued availability of these essential services may reduce the perceived necessity of migration despite deteriorating road infrastructure and limited village accessibility.

These findings are consistent with (29), who found that housing damage and environmental risks do not necessarily increase migration intentions among coastal communities in Vietnam. Economic stability, home ownership, and strong community relationships may outweigh environmental and infrastructural pressures when households consider whether to migrate.

Applying this perspective to the present study, respondents experiencing poor road conditions and limited accessibility may simultaneously possess strong social relationships, established livelihoods, and long-term attachment to their villages. Consequently, the perceived costs and uncertainties associated with relocation may exceed the difficulties of remaining in flood-prone areas. The results demonstrate that infrastructure vulnerability alone cannot adequately explain migration intentions. Instead, the decision to remain or migrate emerges from interactions between environmental conditions, access to basic services, livelihood security, social networks, and place attachment.

3.1.2. Emotional Attachment

Emotional attachment represents an important dimension of household decisions to remain in flood-prone areas. Previous studies have demonstrated that residents' decisions to stay are often influenced by their attachment to their homes and communities (15,29).

As shown in Table 4, length of residence appears to be associated with respondents' preferences to remain. Among the 146 respondents who had lived in the villages for more than 30 years, 125 preferred not to migrate. Efforts by residents who choose to stay in flood-prone areas have fostered collective action for adapting to flood risks (30,31). Long-term residence may strengthen emotional attachment through accumulated experiences, family histories, social relationships, and familiarity with the local environment.

The frequency of social interaction also reveals an important pattern. Among 103 respondents who reported interacting very frequently with other residents, 98 preferred not to migrate. Similarly, 70 of the 80 respondents who frequently interacted with their neighbours expressed no migration intention. In contrast, respondents reporting limited social interaction showed a relatively greater tendency to consider migration.

Table 4. Emotional Attachment (n=218)						
A. Length Of Stay	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
<15	6	2,8%	4	1,8%	10	5%
15-30	18	8,3%	44	20,2%	62	28%
>30	21	9,6%	125	57,3%	146	67%
Total	45	20,6%	173	79,4%	218	100%
B. Chit Chat	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
Very Frequently	5	2,3%	98	45,0%	103	47%
Frequently	10	4,6%	70	32,1%	80	37%
Rarely	26	11,9%	5	2,3%	31	14%
Very Rarely	4	1,8%	0	0,0%	4	2%
Total	45	20,6%	173	79,4%	218	100%
C. Joint Group Adaption	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
	n	%	n	%		
Yes	12	5,5%	121	55,5%	133	61%
No	33	15,1%	52	23,9%	85	38%
Total	45	20,6%	173	79,4%	218	100%

These findings suggest that strong social networks may contribute to households' willingness to remain in hazard-prone environments. Frequent interactions generate trust, reciprocity, mutual assistance, and a sense of belonging, strengthening residents' attachment to their communities (Woodhall-Melnik & Weissman, 2023). Community participation in adaptation activities demonstrates a similar pattern. Among 133 respondents participating in collective adaptation initiatives, 121 preferred not to migrate. Residents collectively undertake adaptation measures, including constructing temporary barriers and elevating roads through community self-help initiatives.

Collective adaptation not only reduces physical vulnerability but may also strengthen social cohesion and place attachment. Community participation transforms flooding from an individual household problem into a shared challenge addressed through collective action. Such cooperation may generate a sense of efficacy, belonging, and ownership that reduces the perceived necessity of migration. Rather than viewing staying as passive acceptance of environmental risks, these findings indicate that remaining can represent an active adaptation strategy. Residents continuously modify their homes, participate in community initiatives, and rely on social networks to manage the impacts of tidal flooding. Consequently, migration is not necessarily perceived as the primary response to environmental degradation. This finding complements Duijndam et al. (2023), who emphasised the role of economic security and social relationships in reducing migration intentions. In the present study, community adaptation and social networks appear to provide both practical and psychological support that enables residents to continue living in flood-prone areas.

3.1.3. Emotional Attachment

Economic losses in this context are a market response to the severity of the community's tidal inundation effect. These financial losses can be categorized into two criteria. The first criterion involves averting behavior or costs based on preventive expenditure and replacement cost. (32,33). The second approach relates to human capital and includes the loss of earnings and the cost of illness. (34). This study revealed that most financial losses occurred in all components' lowest income brackets (see Table 5).

Table 2. Economic Losess per month (n=218)

Variables		Percentage s	Notes
replacement cost (,000 IDR)	The cost of purchasing clean water		
	< 1,000	46.4	Min = 0
	1,000 -1,500	37.2	Max = 3,000
	>1,500	6.4	Mean =655
	Home renovation cost		
	< 500	56	Min =0
	500 - 3,500	41,3	Max = 10,000
	> 3,500	2,8	Mean = 697
	Home Prevalence Cost		
Preventive Cost (,000 IDR)	< 5,000	70.6	Min = 0
	5,000 - 15,000	17	Max = 100,000
	> 15,000	32.1	Mean = 11,999
	Community Prevention Costs		
	< 500	83	Min = 0
	500-1,500	8.7	Max = 5,000
	>1,500	8.3	Mean = 267
	Medical expenses (,000 IDR)		
	< 100	93.1	Min = 0
loss of revenue(,000 IDR)	100 - 500	6	Max = 3,000
	> 500	0.9	Mean = 50
	< 5,000	61	Min = 0
	5,000 - 30,000	22.9	Max = 24,000
Total economic losses(,000 IDR)	> 30,000	16.1	Mean = 1,245
	< 5,000	42.7	Min = 1,030
	5,000-25,000	36.7	Max = 106,440
	25,000-45,000	13.8	Mean = 14,938
	>45,000	6.9	

As shown in Table 5, households experienced various forms of economic losses associated with purchasing clean water, renovating houses, implementing preventive measures, paying medical expenses, and losing income. A substantial proportion of households experienced economic losses despite having relatively limited household incomes. The average monthly household income was IDR 2,911,422, while the minimum

household income was IDR 800,000 per month. These figures indicate that expenditures associated with tidal flooding may represent a considerable financial burden, particularly for low-income households. One of the largest adaptation expenditures involved purchasing sand, gravel, and other construction materials to elevate houses and reduce tidal inundation.

Income losses also occurred because tidal flooding disrupted household economic activities. Flooding during certain periods restricted mobility and reduced productivity, particularly among residents whose livelihoods depended on local economic activities. Nevertheless, Table 6 demonstrates that economic losses did not necessarily result in migration intentions. Among 93 respondents experiencing losses below IDR 5 million, 82 preferred not to migrate. Similarly, among respondents experiencing greater economic losses, the majority continued to express a preference for remaining.

These findings demonstrate that economic rationality alone cannot explain household migration decisions. Although households experience recurring financial losses, relocation also involves substantial costs and uncertainties. Migration may require households to sell or abandon property, establish new livelihoods, find employment, and rebuild social networks in destination areas. Consequently, residents may perceive adaptation expenditures and recurrent economic losses as more manageable than the economic and social uncertainties associated with relocation. This finding reinforces the argument that migration decisions emerge from interactions between economic considerations, emotional attachment, social relationships, and livelihood security.

Table 3. Migrate Decision on Economic Losses

Economic Losses (,000 IDR)	Desire Migrate				Total	
	Want Migrate		Not Want Migrate		n	%
<5,000	11	5,0%	82	37,6%	93	42,7%
5,000-25,000	22	10,1%	58	26,6%	80	36,7%
25000-45,000	8	3,7%	22	10,1%	30	13,8%
45,000-65,000	2	0,9%	7	3,2%	9	4,1%
>65,000	2	0,9%	4	1,8%	6	2,8%
Total	45	20,6%	173	79,4%	218	100%

3.2. Why Do Flood-Affected Communities Choose to Stay ?

The quantitative findings reveal a central paradox: despite experiencing recurrent tidal flooding, environmental degradation, inadequate infrastructure, and economic losses, 79.4% of respondents expressed no intention to migrate. To explore this pattern more deeply, in-depth interviews were conducted with ten key informants.

The qualitative analysis identified three major themes explaining residents' decisions to remain: loyalty to place, material and livelihood considerations, and social bonding. These findings are consistent with (12,13), who emphasised that migration decisions are shaped by attachment to place, social capital, livelihoods, and economic assets (7). Loyalty emerged as the most frequently expressed reason for remaining. Informants described strong emotional connections to their villages as places of birth, family history, personal memories, and community identity. For long-term residents, relocation was perceived not merely as changing residential location but also as leaving behind an important part of their personal and collective identities.

Table 7. Influences Not to Migrate

Theme	Sub Theme	Frequencies of Quotes	Example of Comments
Loyalty	A sense of ownership of the territory	12	"...yo sakjane neg urip ng kene yo pun mboten betah, kulo tapi pun ten mriki saking lahir, rasa e yo pripun ko pernah e ninggal desa e piyambak. Ws ket cilik ten mriki." (Javanese). ".... living here is not at home, but it has been my home since childhood, so how uncomfortable will it be if I leave my village. It has been present from a young age." (EN). "kulo mpun adaptasi ten mriki mbak, nyambut gawe ten mriki, yo kenal tonggo-tonggo, mpun ndangu kulo ten mriki, dados ya pripun nggih mbak, tanah niki nggih panggonanku walaupun sbenernya kulo mboten asal mriki" (javanese). "I have been adapting here, working here, knowing the neighbors, and having a bond with this place. This land is my home, even though I was not born here." (EN)
	Keep the village alive	6	"ya mb, kalau ditinggal desa niki dados sepi, lama lama nanti desa niki mboten urip maleh.. kabeh wong pindah.. padahal niki kan tanah kelairan yang terus harus dijaga keberlangsungan hidup warganya" (Javanese) "Yes, Miss. The future of the village can be deserted. It will be a long time since they are not alive... All people relocate.. even though a homeland must be maintained for the survival of its citizens) (EN)
	Total loyalty	18	
Materials	Asset (land, houses, furniture)	6	"orang orang disini terkadang tidak tega mb untuk pindah, ya kan tanah, rumah, perobot.. Itu semua aset bagi warga mb.. Mesti wong wong do berat ng kunu e mb" (javanese). "People here sometimes do not want to move, because there is land, houses, spectators, all of that is are assets for them... must be hard to migrate." (EN)
	Livelihood	5	"waddu mbak, aku piyampak punya kerjaan disini, misal nanti pindah ga dapat penghasilan takutnyaa.. Meh kerjo opo yo misal pindah, dados mboten ngertos"(Javanese). "how is it going? I am working here myself, so I do not know if I can get a job later." (EN)

Theme	Sub Theme	Frequencies of Quotes	Example of Comments
	Charges of migrate	4	"warga disini itu ya sebenarnya ga kerasan. Tapi bagaimana, semua pada bertahan, mergo yo kangge maem sehari hari mawon angel, dadi yo misal pindah kan pasti akeh printilannya, jadi ya pun banyak yang masih disini" (Javanese). "The people here are not comfortable, but anyway, everybody stands up because it is not easy to eat every day. So, if you move, there is gonna be much cost, so a lot stays here." (EN)
Total of Materials		15	
	An active group in the community	2	"disini yo mbak, aku kenal semua. Ga terkecuali pokok e mbak, dadi rukun enak.. Biasanya pun aku yang diminta bantu isi isi kuisisioner dari pemerintah.. Ten mriki yo mbak, mesti ada kumpulan, pengajian, dadi yo hampir semua saling kenal, jadi kalau ada apa apa gotong royong" (Javanese). "I know everyone here, so the atmosphere is pleasant and welcoming. Typically, I am asked to assist in completing a government questionnaire. We also have groups, so practically everyone knows who everyone else is. So, if anything comes up, we are always willing to collaborate.." (EN)
Bonding	A sense of brotherhood	3	"ten mriki yo kulo pun koyo saudara mbak kaleh tonggo-tonggo, dadi yo rahat, rukun koyo niku mbak, jadi misalpun tetap ng kene, bareng bareng dengan lainnya" (Javanese). "I feel like a brother to the people here, and the atmosphere is very comfortable and harmonious." (EN)
	Strong community self-help	3	".....dadi kalau ujan koyo niki yaa, banyu e ketahan.. Dadi orang orang podo swadaya nggo ninggike dalan daripada nunggu bantuan saking pemerintah dangu" (Javanese). "Fortunately, even here, this water rushes into the pits of Wonokerto. As a result, instead of waiting for official assistance, the residents here are doing their best to rebuild the road." (EN)
Total Bonding		8	

The reasons for staying can be considered irrational, as illustrated by the theory of consumer choice (Hirschman,1970); according to rationality, when individuals experience a decline in their quality of life, they face options akin to "exit" or "loyalty." The fact that most respondents expressed no intention to migrate prompted us to conduct in-depth interviews

for further investigation. The qualitative approach revealed irrational factors that cause individuals to prefer staying over migration. Similarly, (35) noted that individual migration decisions are often influenced by irrational factors unrelated to the risk of loss or distress. Qualitative findings indicate that informants frequently mentioned loyalty, material assets and social bonding.

Interestingly, loyalty, rather than material or economic factors, emerged as the main reason people chose to stay. This contrasts with findings from (36) On farming communities, where farmers migrated due to the high costs of maintaining their livelihoods. Because most respondents are indigenous, their strong sense of regional identity plays a significant role. Another reason for staying concerns losing work assets, as many are employed as fishers, food vendors, or small-scale farmers. They are also pessimistic about finding new customers if they relocate, as they already have an established customer base in their current location.

In-depth interviews revealed that emotional attachment is a vital factor underlying the decision to stay. Historical connections and memories help individuals feel connected to their physical homes, family land, material belongings, and the local community (30). The findings highlight a sense of camaraderie among neighbors and the fulfillment of infrastructure needs, like water and electricity, as reasons for staying despite frequent floods (37). Although residents may wish to leave, they have developed a high tolerance for the flood disasters. As (6,18,38) found, this is supported by strong social capital and continued easy access to essential infrastructure. Fear and uncertainty about future floods as well as a personal bond to the place are critical emotional factors (28).

The qualitative findings therefore provide an important explanation for the patterns observed in the quantitative results. Environmental hardship, inadequate infrastructure, and economic losses do not necessarily translate into migration intentions because residents' decisions are mediated by place loyalty, livelihood dependence, material assets, and strong social networks. Overall, the findings demonstrate that migration should not be viewed as an automatic response to climate-related environmental degradation. Most households in the study area prefer in-situ adaptation, supported by social networks, emotional attachment, livelihood continuity, and collective action. Migration appears to represent a last-resort strategy rather than the primary adaptation response. These findings have important implications for climate adaptation policy. Government interventions should not assume that relocation is necessarily the preferred or most appropriate response for flood-affected communities. Adaptation strategies should instead recognise residents' attachment to place and strengthen their capacity to remain safely where feasible. Structural interventions, including improved drainage systems, elevated roads, dikes, and flood-resilient housing, should be integrated with ecosystem-based measures such as mangrove restoration and community-based adaptation programmes. Such strategies may reduce vulnerability while respecting local preferences and reducing the risk of involuntary displacement.

Conclusions

The study investigates factors influencing migration intentions and why people choose to remain in flood-prone areas. It examines factors affecting those who intend to move, such as activity constraints, inadequate infrastructure, increasing discomfort over prolonged stays, high communication intensity, anxiety, and self-adaptation costs. The study also explores why people decide to stay in flood-affected areas. Key findings indicate that many individuals remain due to loyalty to their land, strong community bonds, and the desire to

preserve assets and livelihoods. This research contributes to understanding migration and natural hazards, highlighting that complex and often irrational factors influence migration decisions. Two notable variables in this study are the length of residence as a representation of loyalty and vital neighborhood networking as a form of bonding.

A limitation of this study is that it relies solely on cross-tabulation analysis, which does not provide statistically robust evidence, as it is based only on frequency and percentage calculations of respondents. Qualitative data were incorporated to reinforce the findings. The implications of this research are valuable for guiding local government efforts to improve conditions in areas prone to tidal flooding, enabling residents to maintain their daily activities comfortably. Considering the community's tendency to uphold a vibrant village atmosphere is essential. Government strategies could include hybrid approaches, combining structural engineering measures, like seawalls, dikes, and elevated structures, with ecosystem-based solutions, such as mangrove planting. Recommendations from previous research also suggest analyzing the social capital built through solid community networks and emotional attachments..

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Conflicts of Interest

The authors declare no conflict of interest.

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