

Climate Resilience for Communities (CRMC) in Degayu Subdistrict, North Pekalongan, Pekalongan City



2025



Mercy Corps Indonesia

The Climate Resilience
Measurement for
Communities (CRMC)

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CHAPTER I

Brief Description of CRMC

1.1 Background

The Zurich Flood Resilience Alliance ('the Alliance') is a cross-sector collaboration between Zurich Insurance Group, NGOs, and academia. Zurich Insurance Group works with the humanitarian and civil society organizations Concern Worldwide, the International Federation of the Red Cross and Red Crescent Societies (IFRC), Mercy Corps, Plan International, and Practical Action, as well as research partners the International Institute for Applied Systems and Analysis (IIASA), the London School of Economics, and the Institute for Social and Environmental Transition-International (ISET). The Alliance was originally launched in 2013 with the goal of shifting focus from flood response and recovery to pre-event risk reduction. Since 2013, the Zurich Flood Resilience Alliance has successfully been developing and implementing the Flood Resilience Measurement for Communities (FRMC) process, which has been used in over 400 communities globally. In 2020, Alliance members decided to explore the possibility of updating the FRMC and adding new hazards to the framework, and in 2021 a team of Alliance members and other experts developed the content and functionality of the CRMC.

The CRMC is the next evolution of the FRMC, meeting the increasing demand to measure resilience to multiple hazards in order to accelerate climate-change adaptation. The CRMC currently covers flood and heatwave hazards but can be extended to other climate-related hazards. The Z Zurich Foundation's Climate Change Adaptation Program is piloting this in several communities, including the Degayu community in Pekalongan City.

CRMC is piloted through the Z Zurich Climate Resilience Alliance (ZCRA) Foundation. In early 2024, the ZCRA program entered its third phase. Mercy Corps Indonesia is currently conducting a CRMC assessment as a basis for program implementation in the third phase and drawing lessons learned from the second phase. This profiling and strategy development activity is a collaboration between IKUPI (Inisiatif Kota untuk Perubahan Iklim) and Mercy Corps Indonesia which will take place in stages in May 2024 – May 2025.

1.2 Definition, Objectives, and Benefits of CRMC

The Climate Resilience Measurement for Communities (CRMC) is a framework for measuring community resilience to climate-related hazards, with an associated process and tool for implementing the framework in practice. The CRMC has been designed using a systems-based approach. The CRMC framework is holistic and integrated, and also facilitates the exploration of the interconnections between results. The framework consists of ex-ante indicators or 'sources of resilience' measured in normal/non-disaster times and post-event variables measured after a disaster event occurs. The CRMC is based on the Flood Resilience Measurement for Communities (FRMC) originally developed by the Zurich Flood Resilience Alliance. It includes an approach for testing and empirically validating the framework, and a technology-based data-gathering and evaluation tool for measuring and assessing community resilience to certain climate-related hazards such as heatwaves and floods. The tool is a practical 'hybrid' software application consists of online web-based platform for setting up the process and analyzing results and a smartphone- or tablet-based app that can be used offline in the field for data collection.

CRMC focuses on the community level, where climate change impacts are most damaging, and where much action on improving resilience needs to be taken. Also, many humanitarian

and civil society organizations (including our Alliance members) primarily work at the community level. In CRMC, a 'community' could be defined geographically (perhaps in rural contexts) or by administrative boundaries (which may work in more urban situations). However, no single community will 'feel' like another and there may be cultural aspects to consider too. As a result, we have concluded that, in reality, a community largely defines itself. No matter how the community is defined, the study must be inclusive for all members including diverse genders, ages, and abilities, as well as for ethnic and cultural groups.

It is important to note that measurement at the community level can support decision-making and advocacy at higher levels. Furthermore, community resilience measurement can be an input for programs and initiatives in the community. The CRMC has been designed with more urban perspectives, such as density (population, buildings, infrastructure, etc.), diversity (of actors, infrastructure, and space), and dynamics (population growth, industry, commerce, etc.).

CHAPTER II

Overview of Degayu Subdistrict and the Community

2.1 Degayu Subdistrict

2.1.1 Administration Context

Degayu Subdistrict is one of the administrative areas within the North Pekalongan District of Pekalongan City, Central Java Province. This subdistrict was established in 1991, according to Government Regulation (PP) Number 21 of 1991. The subdistrict covers an area of 378,88 hectares, and is divided into 9 RW (community units) and 39 RT (neighbourhood units), with the following boundaries:

North : Java Sea
South : Gamer Subdistrict, East Pekalongan District
West : Krapyak Subdistrict, North Pekalongan District
East : Batang Regency

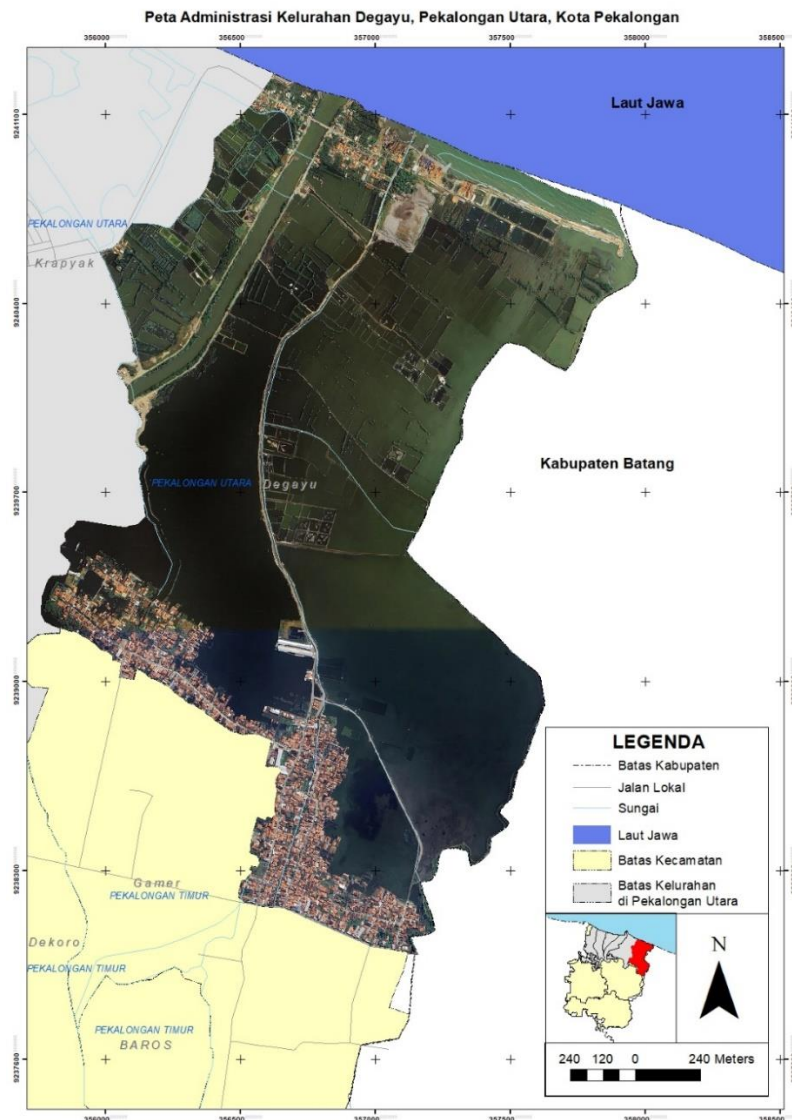


Figure II.1 Administrative Map of Degayu
Source: SAS Planet Satellite Imagery Processed (2025)

2.1.2 Physical, Environmental, and Disaster Context

- Physical Environment

According to the 2022 data from the Central Java Public Works Water Resource and Spatial Planning (Pusdataru Jawa Tengah), the following is several aspects of the physical environment conditions of Degayu Subdistrict:

Table II.1 Physical Environment Conditions of Degayu

No	Physical Environment Conditions	Description	Area (Ha)	Percentage
1	Hydrology	Productive aquifers with extensive distribution	239,76	63,28%
2		Brackish areas	139,11	36,72%
3	Soil Type	Alluvial	378,88	100%
4	Land Suitability	Cultivation area	378,88	100%
5	Rainfall	1750-2250 mm/year	378,88	100%
6	Slope	0-8%	378,88	100%
7	Water Catchment Area	-	0	0%

Source: Pusdataru Jawa Tengah (2022)

Degayu Subdistrict has a hydrological condition dominated by productive aquifers with an extensive distribution of 63,28%. This relatively high figure indicates that the soil layers in Degayu Subdistrict contain water and can provide a significant amount of water for use through wells or springs. The role of aquifers for human life and ecosystems is to maintain a stable and reliable water supply. In addition, approximately 36,72% of Degayu Subdistrict consists of brackish areas or water areas formed from a mixture of fresh and seawater. Furthermore, the soil type in Degayu Subdistrict is entirely alluvial, this type of soil is formed from mud deposits carried by river flows, and it is considered a fertile type of soil.

Before the northern part of Degayu was affected by tidal flooding and covered by large puddles, most of the area was used for agriculture. Crops such as rice, corn, vegetables, and fruits were well-suited to this type of soil. Degayu Subdistrict is entirely designated as a cultivation area to support the livelihood activities of the local community. In terms of rainfall, Degayu Subdistrict falls within the low to medium range, with 1750-2250 mm/year. Additionally, the subdistrict is classified as a flat area with a slope of 0-8%. Lastly, Degayu Subdistrict does not have any water infiltration areas, indicating no limitations for building development.

- Land Use

Table II.2 Land Use of Degayu

No	Description	Area (Ha)	Percentage
1	Residential	54,56	14,40%
2	Paddy Fields	142,27	37,55%
3	Brackish Water Ponds	156,46	41,30%
4	Industrial	0,00	0%
5	Drylands	25,57	6,75%

Source: Pusdataru Jawa Tengah (2022)

Brackish Water Ponds are the dominant type of land use at 41,30% in Degayu Subdistrict, based on land use data reported by Pusdatanu Central Java in 2022. Paddy fields account for 37,55%, making it the second largest land use in the subdistrict, followed by 14,40% residential land use and 6,75% of drylands.

- Disasters

Table II.3 Vulnerability Condition of Degayu

No.	Vulnerability Component	Index
1	Sensitivity	2,78
2	Exposure	4,12
3	Capacity	3,03
Vulnerability Score		3,78

Source: Climate Risk and Impact Assessment of Kupang Watershed (2022)

The Climate Risk and Impact Assessment in Kupang River Basins by Mercy Corps Indonesia (2022) shows that in 2020, Degayu Subdistrict is one of the coastal areas categorized as having varying levels of flood hazard, ranging from moderate to very high. However, based on projections for 2021-2035, Degayu is expected to experience an expansion of areas categorized as very high category, while moderate hazard areas will still remain. At the same time, assessment of vulnerability components – namely sensitivity, expose, and adaptive capacity (Tabel II.3) – Degayu’s sensitivity level in 2035 is projected to fall into the low category, despite having very high exposure and moderate adaptive capacity. Therefore, the overall vulnerability level of Degayu is projected to increase from high in 2020 to very high in 2035.

The combination of hazard and vulnerability components resulted in varying levels of flood risk in 2020: low in the southern part of Degayu, moderate in the central area, and very high along the northern coast. Projections for 2035 indicate an increase in the risk level, with the entire Degayu area expected to fall into the very high-risk category. It is important to note that this assessment does not account for the construction of a flood protection embankment in northern Degayu, which was completed in 2024. The presence of this infrastructure may lead may lead to changes in risk level category.

2.1.3 Demographic Context

Table II.4 Demographic Context of Degayu

Category	Sum of People
Male	4135
Female	4040
Age 0-15 Years	2091
Age 15-65 Years	5727
Age >65 Years	342
Total Population	8160

Source: Degayu Subdistrict Monograph (2024)

According to the Degayu Subdistrict Monographic Data of 2024, the population of Degayu Subdistrict is 8.160 people, comprising 2640 households. The sex ratio of

Degayu Subdistrict is 102,35, indicating that the number of males slightly exceeds that of females. Regarding age group categories, 70,18% of the population is productive age, while the remaining 29,82% consists of non-productive age groups, including children and the elderly.

- Education

Table II.5 Education Level in Degayu

No	Education Level	Number of People
1	Kindergarten	1858
2	Elementary School	3012
3	Junior High School	1066
4	Senior High School	744
5	Diploma (D1-D3)	34
6	Bachelor's Degree (S1)	120
7	Master's Degree (S2)	5

Source: Degayu Subdistrict Monograph (2024)

Regarding educational backgrounds, the majority of the population in Degayu Subdistrict (44,04%) has completed elementary school. This is followed by 15,59% of the population having completed the junior high school level and 10,88% of the population has graduated from the senior high school. Additionally, Degayu Subdistrict has a total of 2,32% of its residents with education levels above high school, ranging from Diploma to Master's Degree.

2.1.4 Socio-Cultural

- Institutional

Table II.6 Institutions in Degayu

No	Organizations	Board of Managers	Number of Member
1	Community Empowerment Agency (LPM)	3	10
2	Community Self-Reliance Agency (BKM)	3	8
3	Family Welfare Movement (PKK)	7	20
4	Youth Organization (Karang Taruna)	7	N/A
5	Communication Forum of Mosque/Musholah (Forkom)	54 (for 25 Forkom institutes)	N/A

Source: Degayu Subdistrict Monograph (2024)

The institutions in Degayu Subdistrict are diverse enough to illustrate the socio-cultural conditions in the subdistrict. Family Empowerment and Welfare (PKK), which stands as the institution with the most members, followed by Youth Organization (Karang Taruna), Community Self-Reliance Agency (BKM), Community Empowerment Agency

(LPM), and Communication Forum of Mosque/Musholah (Forkom) as active organizations in the Degayu Subdistrict.

- Social Security

Table II.7 Social Security Condition in Degayu

No	Security Type	Quantity	Unit
1	Community Protection Units (Linmas)	30	Person
2	Neighbourhood Security Posts	7	Unit
3	Disaster Monitoring Posts	0	Unit

Source: Degayu Subdistrict Monograph (2024)

Degayu Subdistrict has a Community Protection Unit (Linmas) that is tasked with protecting the community from disturbances caused by disasters, as well as efforts to carry out tasks to assist in disaster management. In addition, there are 7 units of neighbourhood security posts but there's no of natural disaster posts available in Degayu Subdistrict, demonstrating a commitment to safeguarding local order and security.

2.1.5 Economics

Table II.8 Occupations in Degayu

No	Occupation		Number of People
1	Employees	Civil Servant	18
2		Army/Policeman	6
3		Private Sector	2463
4	Entrepreneurs		50
5	Farmers		39
6	Mechanics/Technicians/Repairments		25
7	Agricultural Laborers		50
8	Retirees		15
9	Fishermen		46
10	Scavengers		115
11	Service Sectors		140

Source: Degayu Subdistrict Monograph (2024)

The private sector employees are the dominant occupation in Degayu Subdistrict, making up 83,01% of the workforce. The next largest segment is service sectors, capturing 4,72% of the employment and scavengers making up 3,88% it is due to the presence of the landfill (TPA Degayu) on the northern Degayu. Other professions in the subdistrict with a number below 1% are civil servants, mechanics/technicians/repairments, retirees, and the lowest is the TNI/POLRI at 0,20%.

2.1.6 Infrastructure Context

Table II.9 Infrastructure Condition in Degayu

No	Facilities		Quantity
1	Government	Subdistrict Office	1
2	Health Services	Sub-Community Health Center (Puskesmas Pembantu)	1
3		Community-Based Health Efforts (UKBM: Posyandu, Polindes)	23
4	Education	Early Childhood Education (PAUD)	15
5		Kindergarten	9
6		Elementary School	10
7	Worship	Mosques	13
8		Prayer House (Musholah)	36
9	Recreation	Sport Fields	5
10	Economy	Traditional Market	

Source: Degayu Subdistrict Monograph (2024)

Degayu Subdistrict has 1 subdistrict office located on the main road of Degayu Subdistrict to support government activities. As supporting health services, Degayu Subdistrict has 1 sub-community health center (puskesmas pembantu) with 9 UKBM (Community-Based Health Efforts) in the form of posyandu and polindes. Furthermore, the local community can access the available educational services, ranging from early childhood education (PAUD), kindergartens (TK), and elementary schools (SD). In terms of religious needs, Degayu Subdistrict has 3 mosques and 22 prayer houses (musholah) distributed in community settlements. There are also 3 sports fields available to meet the recreational needs. There is also a market in Degayu to support the economic activities of the Degayu community and its surroundings.

2.2 Degayu Community

The Degayu community is located in 4 RWs (community units), namely RW 02, 04, 07, and 08. This community is defined as the community most affected when a flood occurs. In this current situation, the Degayu area has been embanked which is included in the Loji-Banger Flood Control System. The embankment gives positive impact, with no tidal flooding cases since the inauguration in mid-2024. This community has generally been submerged for more than 10 years with an average height ranging from ankle to knee height. However, this is also a new opportunity and challenge for the community, how community can adapt rapidly to changes in livelihoods, which previously in fisheries sector, the community hopes to utilize the dry land as agricultural land. The majority of Degayu community works in the informal sector with the majority of owning permanent houses. So far, the community has adapted due to tidal flood by elevating their houses by an average of 1-1,5 meters in one construction work. The community accesses clean water by Pamsimas (Community-Based Drinking Water Supply Project). The Degayu community is categorized as medium-density residency with diverse population characteristics in each RW.

RW 02 is relatively high population density. RW 02 consists of residential areas, brackish water ponds, and formerly inundated land – the area has been converted into dry, usable space following the embankment construction. There are people who reclaim the area as agricultural land. New houses have also have also emerged in this area. RW 02 is crossed by Susukan River which flows into the sea. Several houses around the river do not own septic tanks and

private and/or bathrooms. As a result, residents use the river for domestic waste disposal by building Jomblong (floating toilets or latrines) which directly discharge waste into the water body. The majority of people in RW 02 works as labourers such as construction workers, ship painters, farmers, garment factories, and batik worker. Some community members run their own small businesses, such as grocery stalls, repair shops, and farming. Currently, the vegetation in RW 02 is increasingly diverse with the presence of new cropland after the embankment. The crops are dominated by paddy fields, corn, and beans.

RW 04 is located in southern area of Degayu community, crossed by the main road, Ki Mangun Sarkoro Street, and directly borders with Gamer Subdistrict, North Pekalongan and Batang Regency. RW 04 consists of residential areas, brackish water ponds, and commercial area along the main road. The majority of the community works as labourers (construction, factory, crafting – batik, and textile) and self-employed (business owners and repair shops). Similar conditions in RW 02 related to sanitation, there are houses with no toilets so residents using public toilet and Jomblong. Some parts of RW 04 settlements still experience flooding due to high intensity rains. It happens because of low level of roads so the houses have not been raised either. The water supply from Pamsimas is in small volume and only distributed at certain times which are generally at night and if there is flood occur, the water is contaminated by flood. Vegetation is dominated by grass.

RW 07 and 08 have similar characteristics and were originally part of a single administrative unit, namely Dukuh Clumprit. Dukuh Clumprit was the most affected area by flooding in Degayu Subdistrict with a flood duration of up to 6 months. This was because Clumprit is a basin/low land area. After being embanked, there were still inundated area, especially in the residential area of RW 07. Because of affected by long period of flood and currently dry due to embankment, some houses have sunk lower than ground level due to the lack of periodic elevation. After the tidal flood was gone, Clumprit is identified as slum area. Clumprit receives DAK (Special Allocation Fund) aid for handling slum areas in 2025 for RW 08 and 2026 for RW 07. Some roads remain unpaved, the Clumprit resident voluntarily elevated the roads using their own resources. The majority of the community are labourers (odd jobs, construction, factory, farming, textile, and batik crafting), self-employed (traders and repair shops), agricultural sectors (cattle, goat, and poultry), fish farmers, and fishermen. There are several immigrants who live in Dukuh Clumprit due to the low price of land, relatively to surrounding areas. Currently, the community wants to utilize dry because of embankment by farming and raising livestock.



(a) Jomblong in Susukan River and agricultural land in RW 02



(b) Confiton of residential area and toilets in RW 04



(c) Area that is still flooded and dry land in RW 07



(d) Embankment construction and area that is still flooded in RW 08



Figure II.2 Neighbourhood Environment of Degayu Community
Source: Photo by IKUPI (2025)

CHAPTER III

Collecting Field Data Process

3.1 Climate Resilience Measurement for Communities (CRMC) Tools Training

On 17 November 2024, the IKUPI team participated in the Training of Trainers (TOT) conducted by MCI to help understand the key concepts and principles of the Climate Resilience Measurement for Communities using the CRMC Apps, and to assign roles and responsibilities for the entire data collection process. The training was delivered by David Nash, a representative of the Z Zurich Foundation, who was joined by the IKUPI team, Mercy Corps Indonesia, Mercy Corps Nepal, and the Regional Program and Advocacy Manager of the Zurich Climate Resilience Alliance. The training topics consisted of an overview of CRMC including its update from FRMC, key concepts and principles of CRMC, 5C-4R framework as the basis of CRMC framework, assessment of sources of resilience, and introduction to CRMC tools with simulations.

The training covered 76 indicators or sources of combined heat wave and flood resilience, of which 52 indicators or sources of flood resilience and 50 indicators or sources of heat wave resilience. As agreed during the training, 52 indicators or sources of flood resilience were used in the resilience measurement conducted in coastal Pekalongan. These indicators are listed below:

Table III.1 Flood Sources of Resilience

No	Five Capitals	Indicators/ Sources of Resilience
1	Human	Secondary school attendance
2		Food availability
3		First aid knowledge
4		Awareness of need for climate change action
5		Awareness of climate change risk
6		Awareness of how nature mitigates risk
7		Hazard exposure awareness
8		Evacuation and safety knowledge
9		Unsafe water awareness
10	Social	Mutual support
11		Social inclusiveness of disaster risk management
12		Community safety
13		Local leadership
14		Disaster response personnel
15		Healthcare accessibility
16		Trust in local authorities
17		Intra-community equity
18		Inter-community equity
19		Risk reduction planning
20		Response planning
21		Family violence and response planning
22		Stakeholder engagement in risk management
23		Risk mapping

No	Five Capitals	Indicators/ Sources of Resilience
24	Physical	Disaster impact data collection and use
25		Energy supply continuity
26		Transportation system continuity
27		Communications system continuity
28		Early warning
29		Continuity of education
30		Emergency infrastructure and supplies
31		Continuity of healthcare during disaster
32		Forecasting
33		Household protection and adaptation
34		Availability of clean, safe water
35		Waste management and risk
36		Large scale flood protection
37	Natural	Tree cover
38		Permeable surfaces
39		Land use planning
40		Resource Management
41		Land/water interface health
42		Ecological management for disaster risk reduction
43	Financial	Household access to discretionary funds
44		Community financial health
45		Local government financial capacity
46		Public infrastructure maintenance budget
47		Climate change adaptation planning and investment
48		Business continuity
49		Household income continuity
50		Risk reduction investments
51		Disaster insurance
52		Disaster recovery budget

Source: Website-Based CRMC Application (2025)

3.2 Study Setup

The study setup was prepared from May to July 2024. The IKUPI team translated the 12 modules, questions, and all components of the CRMC application to run in Bahasa Indonesia for both the website and mobile versions. The IKUPI team then submitted the translations to Mercy Corps Indonesia for review and to ensure that the questions were adapted to the local context without losing the focus of the questions. Mercy Corps Indonesia did the editing, which took about a month. Based on the translated modules, the IKUPI team then developed CRMC training tools in Bahasa Indonesia. On February 14 2025, the Project Leader from Mercy Corps Indonesia prepared a study on the Website-Based CRMC application regarding enumerators assignment and the selection of data collection methods.

3.3 Enumerator Training and Simulation

On February 14 2025, IKUPI and Mercy Corps Indonesia conducted a training for enumerators. The training was conducted by the IKUPI team, provided materials focused on in depth understanding each part of household survey questionnaire. Attendants reviewed questions and answer choices to ensure enumerators share a common understanding of the survey questions to be asked during the household survey. Learning from the previous CRMC in the Jeruksari and Krapyak communities, misunderstandings still occurred in interpreting the questions and/or the responses. In this training, certain questions were simplified in their delivery, which may affect the results and analysis produced by the CRMC tool. In addition, the training session also served to refresh enumerators' usage of the CRMC mobile application (demo version). The enumerators downloaded the CRMC application from Play Store and Appstore and chose the demo version. Enumerators did simulation by role-playing with the Mercy Corps Indonesia team which would assist in the data collection process. This simulation included a discussion regarding issues that are likely to happen during a household survey. This activity ensures enumerators have the same understanding and agreement on the survey procedures according to the protocol.



Figure III.1 Enumerator Training and Simulation
Source: Photo by IKUPI (2025)

After this series of training, the enumerators' email would be registered and assigned to the CRMC application. There were eight enumerators in total. Four enumerators were assigned to the Degayu community. The following is the distribution:

Table III.2 Enumerator Assignments on the CRMC Application

No	Degayu Community
1	MercyCorpsIndonesiaFieldWorker01
2	MercyCorpsIndonesiaFieldWorker04
3	MercyCorpsIndonesiaFieldWorker05
4	MercyCorpsIndonesiaFieldWorker07
5	MercyCorpsIndonesiaFieldWorker08

Source: Website-Based CRMC Application (2025)

3.4 Determine Community, Sample Size and Data Collection Designs

The selection of the study area as the basis of the community has been done since the preparation of the Participatory Land Use Plan document in Pekalongan, which is a collaboration between Earthworm Foundation Indonesia and Mercy Corps Indonesia. Therefore, it did not take long to define the community. This stage was also done during the enumerator training and simulation. The sample size was set smaller than the sub-district scale, i.e. RW, and the community was defined as the area most affected by the flood. The sample was calculated with a margin of error of 1%. Household sampling was done using systematic random sampling (SRS). This means that each population has an equal chance of being sampled. A detailed map showing transect lines and sample point locations was systematically visualized using Google Earth. Systematization was done by calculating the distance between house sample points by dividing the total population by the sample size, taking into account the average family size. This map served as a reference for enumerators working in the field.

3.4.1 Sample Size Determination and Detailed Map

The Degayu community observed was RW 02, 04, 07, and 08 with 1197 households and average family member is four. After calibration, the resulting sample size was 121 samples with details of 23 samples in RW 02, 48 samples in RW 04, 25 samples in RW 07, and 25 samples in RW 08. The interval or distance between houses per RW differs depending on the total number of residential buildings in each RW with details of 4-5 houses in RW 02, 5 houses in RW 04, 9-10 houses in RW 07, and 13-14 houses in RW 08. It can be seen that areas with larger intervals indicate a higher number of residential buildings. The following is a detailed map of the Degayu community:

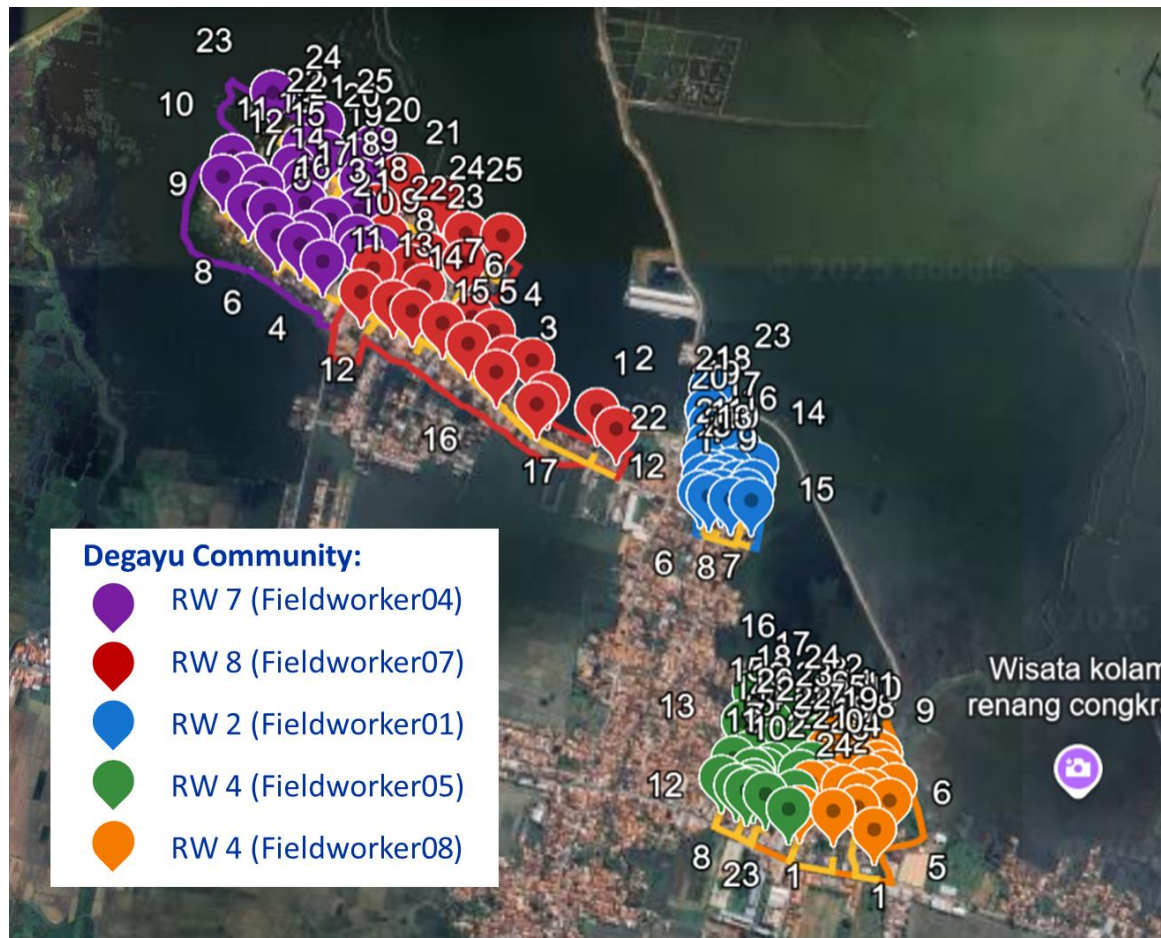


Figure III.2 Degayu Community Detailed Map
Source: Data Visualized Using Google Earth (2025)

3.4.2 Key Informant Interview Design

- Participant: Community leader, Community health worker, Community council member, Local response services, Headteacher, Local business person, officials related to Women/gender official, Development/Planning official, DRR/CC official, Health official, and Public works official.
- Expected findings: the macro and micro context of the community in relation to the five capitals of each community.
- Method: interview
- Time allocation: 30 minutes-1 hour

3.4.3 Focus Group Discussion Design

- Participants: Civil Protection group, Youth group, Council of elders, Savings group, Community council, Local government committee, Religious council, Local NGO/CBO, Women group, Society, Community productive users group, and Community planning committee.
- Expected outcome: each group will provide information related to the five capitals according to the questions provided.
- Method: Focus Group Discussion
- Time allocation: 5-6 hours

3.5 Permit Process and Field Observation

On February 19 2025, Mercy Corps Indonesia and IKUPI visited Degayu Community located on the coast of Pekalongan City. This activity also met and approached the community leader as well as neighbourhood leaders as a form of request to observe and collect data in the area. Previous field observation was conducted on February 14 2025, after training session to observe surrounding conditions such as types of residential areas, land use, flood severity, and human interaction with the coast. In addition, the team review detailed maps showing transect lines and sampling points to facilitate data collection. Field observations were also used to ensure that sampling points were not empty houses or non-residential buildings.

3.6 Data Collection

Data collection through household surveys, key informant interviews, focus group discussions and secondary data was carried out according to the schedule from February 19 to March 06 2025, with details as follows:

3.6.1 Household Surveys

The total number of respondents in Degayu community was 121. Household data collection was conducted in the form of interviews between enumerators and household respondents. The survey was conducted during three days from 19-21 February 2025. There were refusals from certain households but that was the right of the respondents. Enumerators can immediately look for other respondents around the house. There were challenges related to administrative boundaries, such as the absence of RT boundary data and inaccuracies in RW boundaries. This was happened due to limited understanding of the Degayu Subdistrict's regarding its territorial boundaries. There was a distinctive phenomenon in RW 08 where immigrant responded more openly to enumerators during household surveys compared to native of RW 08. The household survey could run more affectively due to the experience of the previous CRMC in Jeruksari and Krapyak communities las year in 2024 and the training conducted by enumerators on February 14 2025.

3.6.2 Key Informant Interviews

The Degayu community had a total of 11 key informants. The key informant interviews were conducted from October 18 to 19 February 2025 in person, 25 February 2025 during the Focus Group Discussion, and 05-06 March 2025 via online. These key informants represent stakeholders from the sub-district to the district level. The key informant interviews provided in-depth insights from those with specific knowledge of the Degayu community. Below is the list of the key informants:

Table III.3 Key Informant Interview Participants of Degayu Community

No	Key Informants	Represented by:
1	Community leader	• Name: Farikhi • Gender: Male • Position: Head of Degayu Sub-district • Year of experience(s): 1 year
2	Community health worker	• Name: Zulfa • Gender: Female

No	Key Informants	Represented by:
		- Position: staff of Sub-Community Health Center (Puskesmas Pembantu) - Year of experience(s): 2 years
3	Community council member	- Name: Muzakiroh - Gender: Female - Position: Secretary of BKM (Community Self-Supporting Board) - Year of experience(s): 15 years
4	Local response services	- Name: Khoerudin - Gender: Male - Position: Leader of KSB (Disaster Unit Group) - Year of experience(s): 6 years
5	Headteacher	- Name: Haryana - Gender: Male - Position: Headteacher at SDN 02 Degayu - Year of experience(s): 3 years
6	Local Business Person	- Name: Rohatin - Gender: Female - Position: Business owner of Laris Jaya Store (building materials store) - Year of experience(s): 3 years
7	Women/Gender Official	- Name: Endah - Gender: Female - Position: Head of Women's Empowerment and Rehabilitation of Children's Rights and Protection of Women and Children - Year of experience(s): 7 years
8	Development/ Planning Official	- Name: Diah - Gender: Female - Position: Staff of Economy, Natural Resources, Infrastructure, and Regional Sector at Bappeda - Year of experience(s): 9 years
9	DRR/CC Official	- Name: Syaifuddin - Gender: Male - Position: Technical Policy Reviewer at BPBD - Year of experience(s): 5 years
10	Health Official	- Name: Maisyaroh - Gender: Female - Position: Environmental Health Officer - Year of experience(s): 10 years
11	Public Works Official	- Name: Hadi S. - Gender: Male

No	Key Informants	Represented by:
		- Position: Water Resources Management Staff - Year of experience(s): 3 years

Source: Discussion Outcomes from IKUPI & Mercy Corps Indonesia & Website-Based CRMC Application (2025)

There were no significant challenges in conducting the key informant interviews. Due to time constraints between the interviewer and the respondent, interviews were allowed to be conducted online via Zoom Meetings or held following the FGD. There were several interviews with certain respondents that by default of the application only contained 2-4 questions, such as interviews with headteacher, local business person, DPMPPA, and health official. Anticipating unstructured and surface-level interviews, the IKUPI team has prepared additional questions as an introduction to the default questions in the application. This is useful for exploring the context or background and understanding the community and disaster situation in Degayu in general.

3.6.3 Focus Group Discussions

A series of Focus Group Discussions (FGDs) were conducted by IKUPI and Mercy Corps Indonesia on February 25 2025. The FGDs were held in parallel session in separate rooms: one with Degayu local community representatives and other consist of local government officials from the Pekalongan City and the Provincial Government of Central Java. In the FGD, the separation of rooms between local community representatives and government officials was implemented to ensure the neutrality of the results and avoid the dominance of opinions due to asymmetric power influences. The government group FGD invited representatives from each relevant technical department according to the areas of inquiry presented. The community group FGD involved various elements such as women, youth, and persons with disabilities, who were gathered in informal community organizations. Both FGD sessions were facilitated by two facilitators from IKUPI, assisted by one co-facilitator from Mercy Corps Indonesia assigned to the local community representatives' FGD in Degayu. In addition, each focused group was supervised by three Mercy Corps Indonesia team. The following is an overview of the FGD conditions for the Degayu community:

- FGD Participants

Table III.4 FGD Participants of Degayu Community

No	Catagory	FGD Participants	Details
1	Local government committee	Government of Central Java Province and Pekalongan City	Central Java Meteorological, Climatological, and Geophysical Agency (BMKG Stasiun Klimatologi Jawa Tengah)
			Regional Development Planning Agency (BAPPEDA Kota Pekalongan)
			Disaster Management Agency (BPBD Kota Pekalongan)
			Public Works and Housing Agency (DPUPR Kota Pekalongan)

No	Catagory	FGD Participants	Details
			Environment Agency (DLH Kota Pekalongan)
			Women Empowerment and Child Protection Agency (DPMPPA Kota Pekalongan)
			Marine and Fisheries Agency (Dinas Kelautan dan Perikanan Kota Pekalongan)
			Food Security and Agriculture Agency (Dinas Ketahanan Pangan dan Pertanian Kota Pekalongan)
2	Religious council	Representative from NU (Nahdatul Ulama) Organization of Degayu Branch	
3	Civil Protection group	Civil Protection Unit & Firefighter	
4	Community council	BKM (Community Self-Relience Board)	
5	Savings group	There is no savings group in Degayu, represented by all FGD participants of the Degayu local community	
6	Society	People with disabilities representative	
		Forum anak	
7	Youth group	Youth group (Karang Taruna)	
8	Council of elders	Elders' representative (absent)	
9	Local NGO/CBO	Local public figure of Degayu	
		KSB (Disaster Unit Group)	
10	Community planning committee	Head of Degayu	
		RW (community units) 02 representative	
		RW (community units) 04 representative	
		RW (community units) 07 representative	
11	Women's group	RW (community units) 08 representative	
		Family Welfare and Empowerment Group (TPPKK Degayu)	
12	Community productive users' group	Fish Cultivator Group (POKDAKAN Mina Paguyangan)	
		Fish Cultivator Group (POKDAKAN Degayu Tiga)	
		Laris Jaya Store (building materials store)	

Source: Discussion Outcomes from IKUPI & Mercy Corps Indonesia & Website-Based CRMC Application (2025)

- Discussion Dynamics

Table III.5 Focus Group Discussion Dynamics of Degayu Community

No	Group	General observations during the discussion
1	Local government committee	Local governments committee were very representative. These agencies had been established prior to the FGD and were active in their fields. In the discussions, representatives were generally active with opinions and views that tended to be similar. The whole community can be represented through the discussion and the discussion adequately captures all views. Men and women got the same opportunity to speak in the discussion.
2	Religious council	The religious council was very representative. The religious council had been established prior to the FGD and was active in their fields. In the discussion, the representative was generally actively participated. discussions, representatives were generally active with opinions and views that tended to be similar. The whole community can be represented through the discussion and the discussion adequately captures all views. Male spoke more in the discussion because the representative was male.
3	Civil protection group	The Civil Protection group represented by Satpol PP. The religious groups had been formed before the FGDs and were active in their fields. During the discussion. In the discussion, the representatives actively participated and knew a lot about the context. The whole community can be represented through the discussion and the discussion adequately captures all views. Male spoke more in the discussion because the representative was male.
4	Community council	The community council was very representative. The community council had been formed before the FGD and was active in its fields. In the discussion, the representative actively participated and knew a lot about the context. Some communities were represented through the discussions and one or a few views dominated with female speaking more in the discussions as the representative was female.
5	Savings group	There is no savings group in Degayu, therefore, the votes of this group were represented by all participants of the local community FGD with decisions made based on the majority response.
6	Society	The society was very representative. Consisting of representatives of cognitive disabilities gathered for the purpose of the FGD and children's forum that had been formed and active in their fields before the FGD. In the discussion, representative from disability was quite passive at the beginning and needed adjustments to be able to participate actively. Children's forum was very actively participated. Some communities were represented through the discussions and one or a few views dominated with female speaking more in the discussions as the representatives were females.
7	Youth group	The youth group was very representative. The youth group had been formed prior to the FGDs and was active in their fields. In the discussion, the representatives knew a lot about the context and participated actively. The whole community could be represented through the discussion and the discussion adequately captured all views with male speaking more in the discussion as the representative was male.

No	Group	General observations during the discussion
8	Council of elders	The elderly representative was not present so the voice/vote of this group was represented by the children's forum (representative of society group). The representation from the children's forum was chosen because both children and the elderly are considered part of vulnerable groups.
9	Local NGO/CBO	The local NGO/CBO was quite representative. The local NGO/CBO in this FGD took representation from KSB and local public figure. KSB and public figure had been formed prior to the FGD and were active in their fields. Some communities were represented through the discussions and one or a few views dominated with male speaking more in the discussions as the representatives were males.
10	Community planning committee	The community planning committee was very representative. The community planning committee had been established prior to the FGD and was active in their fields. In the discussion, the lurah representative tended to give views from the government side. The whole community could be represented through the discussion and the discussion adequately captured all views. Males spoke more in the discussion because the representatives were males.
11	Women's group	The women's group was very representative. The women's group had been established prior to the FGD and were active in their fields. During the discussion, they were quite active in giving their views and answering questions. The entire community was represented through the discussion and the discussion captured all views. This group also exclusively represented women.
12	Community productive users' group	The community productive users' group was very representative. The group had been formed before the FGD and were active in their fields. In the discussion, it participated in answering all questions and actively participated. The whole community was represented through the discussion and one or a few views dominated with male speaking more in the discussion because the representatives were males.

Source: FGD Organized for Degayu Community (2025)

- Lessons learn Focus Group Discussion facilitation:

- The CRMC application still included the savings group category during the FGD study setup. The IKUPI and Mercy Corps Indonesia teams had reviewed the FGD group 'assignment screen' and ensured that the savings group was not selected. However, when the stydu was activated, the savings group appeared as one of the selected FGD groups.
- In general, there were no significant issues during the implementation of the FGD. Most participants were able to follow the discussion and express their opinions based on the topics discussed. However, the disability representatives appeared relatively passive during the session, as their condition involved cognitive disabilities.
- In relation to the set of questions and answers provided by the CRMC system, there were several sentences of questions from the topics discussed that needed emphasis to ensure the understanding of the FGD participants in accordance with the direction of the discussion. In addition, there were also some answers that were not accommodated by the options presented by the system. The closed answer options caused a little confusion among FGD participants in answering because their opinions were limited by the existing answer options.

- IKUPI applied some adjustments to the FGD questions (e.g. combining similar questions, rearranging the order of questions, grouping questions according to FGD participants, etc.) without changing the substance of the questions. These adjustments were made because the FGD questions were designed based on themes so that if the questions were delivered directly to the participants according to the CRMC application, the questions that arose would be repetitive. This was done to make the FGD more effective and to make the process of entering the FGD discussion results easier.
- It is important to remind participants to represent the voice of the group, not their personal voice.
- For community groups that seek to invite people with disabilities, there are two options that can answer the problem of biased answers, the first is to invite institutions/communities engaged in disability issues and/or still invite people with disabilities but carry out additional stages, namely triangulation with family members of people with disabilities or by observation.

3.6.4 Secondary Data

IKUPI and Mercy Corps Indonesia used secondary data sources as one of the methods of collecting baseline data, which can then be used as a reference for collecting end line data.

- *Google Earth* Satellite Imagery
- The 2022 Dataset from Central Java Public Works Water Resource and Spatial Planning (Pusdataru)
- The 2024 Document of Pekalongan City's Regional Action Plan for Climate Change Adaptation (RAD API)
- Participatory Land Use Planning (PLUP) Document of Degayu Subdistrict
- Disaster Risk Assessment Document of Pekalongan City Disaster Management Board (BPBD)
- The 2022 Climate Risk and Impact Assessment in Kupang River Basins
- North Pekalongan District in Figures 2019-2023
- Summary of Pekalongan City's Revenue and Expenditure Budget (APBD) by Group and Type of Income, Expenditures, and Financing for the 2024 Budget Year
- Local mass media coverage

3.7 Grading Process

Grading activity was conducted by Mercy Corps Indonesia team, which consisted of five people, and the IKUPI team, which consisted of two people: Rukuh Setiadi and Rayhan Chansa Chaidir. The grading activity was also attended by Ms. Diah (Pekalongan City Development and Planning Agency) as the representative of the local government, also Mr. Farikhi (head of Degayu Subdistrict), Mrs. Tisya Oktriadhani (secretary of Degayu Subdistrict), and Mr. Aldo Ardiansyah (head of KSB) as the representative of local community. The grading result was reviewed by Ranggi Laksiya Wengi, as the ZCRA MCI Program Consultant. Grading activity was held on March 12 2025, at Hotel Santika Pekalongan.

The grading considered joint discussions, including reflection on the framework of the CRMC tool, consistency of information from the various data sources collected, emphasis on the most reliable and trusted information, whether selecting information from household surveys, key informant interview, focus group discussions, secondary data, or new information agreed upon during the grading process. Reviewing all information and including opinions from each grading participant was always done for every question. Additionally, recalling the data collection process could strengthen the confidence level in choosing a value. For instance, information obtained during the FGD process that supports answers from household surveys will lead the grading to align with the household survey responses.

During the grading process, sometimes the information displayed as a result of data collection were not sufficient to determine the grade, so that the team had to look for additional information to better determine the grade and increase the confidence level. This additional information had been recorded in the rationale box. In addition, there are several notes in the grading process, such as descriptions of answers that appear in each grading answer but are not found in all data collection methods. Some answer choices which do not reflect the community's condition but still require one of the answer options to be selected. This reduces the team's confidence in answering such questions. Therefore, the team selected "No" for the

question box "Are you confident with the grading for this source?" and the reasons for the lack of confidence are outlined in the comments box.

There are also cases where the answers from household surveys, key informant interviews, FGD, and secondary data cannot address the grading, making the rationale box very useful for accommodating such questions. During the grading process, answers are also manually recorded, then re-entered and final checks are done the following day. This is because the rationale box and comments must be in English. The findings of the grading can be seen in the next chapter.



Figure III.3 Degayu Community Grading Process
Source: Photo by Mercy Corps Indonesia (2025)

CHAPTER IV

Interpreting Grading Results

The CRMC is a decision-support tool, which means it provides one set of inputs into the wider process of designing resilience-building interventions and development work. The CRMC results can be viewed in the data cockpit, accessed on the Website-Based CRMC Application when the grading process is set to a completed status. When the grading process has been completed, the application will show a "results" menu on the screen. The results page will show the overall score of the selected hazards in the community, in this case, the Degayu community has a flood hazard. Scores are sorted based on certain lenses such as the five capitals (5C), resilience index, community context, disaster risk management cycle, politics, 4R, 7 themes, and based on GAID (Gender, Age, Inequality, Disability). The data cockpit displays a visualization of the results obtained with various graphs sorted and also displays the same lenses as in the "results" window. As this research is a T0 or baseline study, the cockpit data only displays the T0 study. Community studies can be presented in aggregate or disaggregated data. For example, comparing the Degayu community with other communities or only showing one of them.

Table IV.1 CRMC Grading Scale

Grade	Definitions
A	Best practice for managing the risk
B	Good industry standard, no immediate need for improvement
C	Deficiencies, room for improvement
D	Significantly below good standard, potential for imminent loss

Source: CRMC Project and Study Set Up, Data Collection, and Grading Document (2023)

The table above shows the level rating scale used in the CRMC tool. The CRMC tool assesses each source of resilience on an A-D letter scale. A indicates the best and D indicates the worst. Not all A's are strengths and not all D's are weaknesses. Questions that are not relevant to the community will automatically receive a bad grade. Therefore, there is a need for context and understanding regarding the community, not only seen from the lens of the five capitals, but there are many lenses that help in the analysis stage such as the community context lens, plan management cycle, 4R or 4 resilience, 7 themes, city resilience index, and so forth. The lenses in this CRMC tool refer to sources of resilience from five capitals with a total of 52 indicators. The grading process that has been carried out provides the following information.

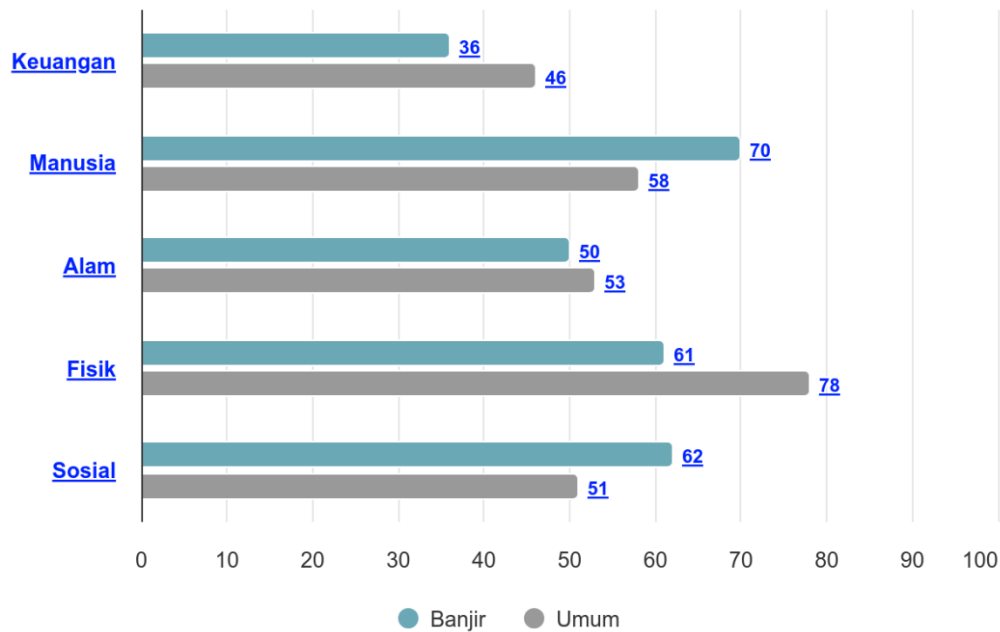


Figure IV.1 Grading Score of Five Capitals Degayu Community
Source: Website-Based CRMC Application (2025)

The graph above shows the assessment scores of financial, human, natural, physical, and social capital differentiated from flood-specific hazards and general hazards. The high scores obtained were (1) physical capital with a score of 61 for specific flood hazards and a score of 78 for general hazards, followed by (2) human capital of 70 for specific flood hazards and a score of 58 for general hazards. Then, (3) social capital of 62 for specific flood hazards and 51 for general hazards, and (4) natural capital of 50 for specific flood hazards and 53 for general hazards. The lowest score was (5) financial capital with scores of 36 for specific flood hazards and 46 for general hazards. Overall, physical capital relates to the physical protection of homes, continuity of public facilities and infrastructure, emergency supplies, forecasting and early warning, and waste management in the Degayu community.

Degayu is one of the sub-districts affected by the construction of the Loji-Banger system which was completed in mid-2024. Formerly, Dukuh Clumprit (RW 07 and 08) was submerged for the past 10 years. Currently, Clumprit and Degayu subdistrict are generally dry, community activities have returned to normal. Physical protection on a household scale carried out by the community is generally elevating the floor and door by a minimum of 1-1,5 meters for one filling. Moreover, Degayu's location, which is not far from the center of Pekalongan City allows for quick emergency response in the event of flooding. However, there is no early warning device installed around Degayu, but BMKG always provides information regarding early warnings and bad weather which is distributed through the RT/RW WhatsApp group. Household waste is collected by officers, but unfortunately the Degayu landfill located in RW 09 has exceeded its capacity and is currently no longer in operation. The combination of physical protection on a regional and community/household scales has resulted in physical capital being rated the highest.

Financial capital can also be seen from the community/household and regional scales. The community/household scale consists of the household access to discretionary funds, community financial health, business continuity, household income continuity, and disaster insurance. The regional scale consists of local government financial capacity, public infrastructure maintenance budget, climate change adaptation planning and investment, risk reduction investments, and disaster recovery budget. In the financial capital dimension, the

most unfavourable condition is the low ownership of reserve fundings/savings within the community/households. During previous floods, the community members were unable to work. The majority of the population are daily wage labourers, so their daily income continuity is significantly disrupted. Additionally, they do not have flood insurance. The Degayu community is predominantly low to middle income, which makes disaster insurance both difficult and unfamiliar to them, not to mention the lack of available information on flood insurance. In terms of regional scale, the Pekalongan City has made a priority in carrying out regional development, seeking alternative financing by forming a POKJA PI (Climate Change Working Group) which includes related agencies, NGOs, and other parties. In addition, the regional financing condition is influenced by the current political conditions, which is implementing budget efficiency at both the national and regional levels.

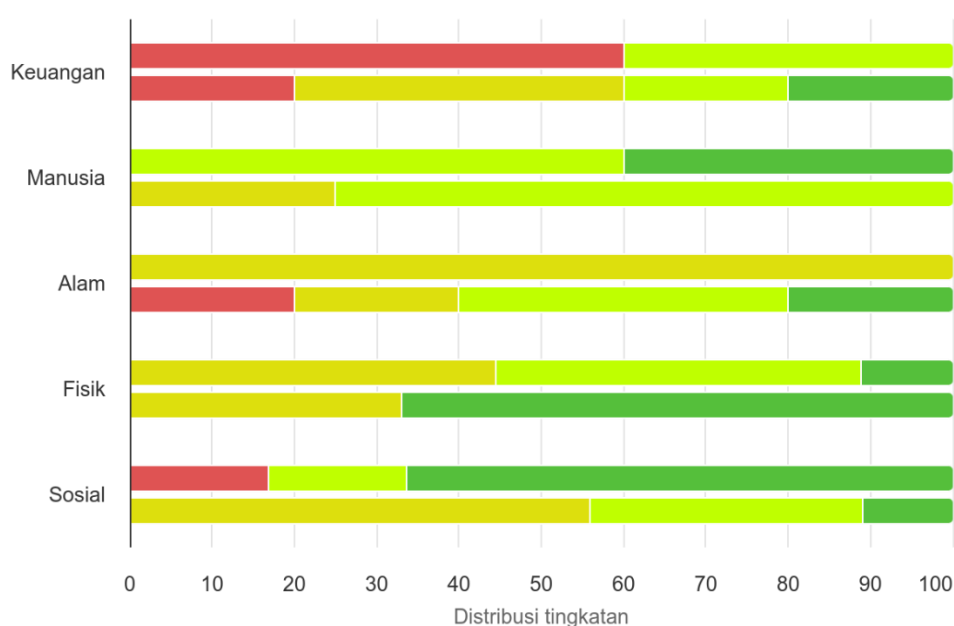


Figure IV.2 Distribution of A to D Grade of Five Capitals Lenses

Source: Website-Based CRMC Application (2025)

The bar diagram above shows the results of assessing the sources of resilience of the five capitals of the Degayu community. The top bar in each capital shows flood-specific hazard resilience sources, while the bottom bar represents general resilience sources. Red indicates Grade D, yellow indicates Grade C, light green indicates Grade B, and dark green indicates Grade A. The X axis shows the proportion of each value in percent (%) while the Y axis shows the five capital components.

For the flood-specific hazard, (1) financial capital gets 60% of the Grade D and 40% of the Grade B (2) Human capital consists of 60% of the Grade B and 40% of the Grade A. (3) All (100%) natural capital consists of Grade C. (4) Physical capital gets 44% of the Grade C, 44% of the Grade B, and 12% of the Grade A. Finally, (5) social capital consists of 17% of the Grade D, 17% of the Grade B, and 67% of the Grade A.

For general (generic) hazards, (1) financial capital gets 20% of the Grade D, 40% of the Grade C, and 20% of the Grade B. (2) Human capital gets 25% of the Grade C and 75% of the Grade B. (3) Capital nature consists of 20% the Grade D, 20% of the Grade C, 40% of the Grade B, and 20% of the Grade A. (4) Physical capital consists of 33% the Grade C and 67% of the

Grade A. (5) Capital social consists of 56% of the Grade C, 33% of the Grade B, and 11% of the Grade A. For more details, below is a breakdown of the values of each source of resilience for the five capitals from the Figure IV.2.

Table IV.2 Details of CRMC Grading Results

No	Code	Resilience Sources	Hazard	Grade
1	H01	Secondary school attendance	GENERIC	B
2	H02	Food availability	GENERIC	C
3	H03	First aid knowledge	GENERIC	B
4	H04	Awareness of need for climate change action	GENERIC	B
5	H05	Awareness of climate change risk	FLOOD	B
6	H06	Awareness of how nature mitigates risk	FLOOD	A
7	H07	Hazard exposure awareness	FLOOD	A
8	H09	Evacuation and safety knowledge	FLOOD	B
9	H10	Unsafe water awareness	FLOOD	B
10	S01	Mutual support	GENERIC	B
11	S02	Social inclusiveness of disaster risk management	GENERIC	C
12	S03	Community safety	GENERIC	B
13	S04	Local leadership	GENERIC	C
14	S05	Disaster response personnel	GENERIC	A
15	S06	Healthcare accessibility	GENERIC	B
16	S07	Trust in local authorities	GENERIC	C
17	S08	Intra-community equity	GENERIC	C
18	S09	Inter-community equity	GENERIC	C
19	S10	Risk reduction planning	FLOOD	A
20	S11	Response planning	FLOOD	A
21	S12	Family violence and response planning	FLOOD	D
22	S13	Stakeholder engagement in risk management	FLOOD	B
23	S14	Risk mapping	FLOOD	A
24	S15	Disaster impact data collection and use	FLOOD	A
25	P01	Energy supply continuity	GENERIC	A
26	P02	Transportation system continuity	GENERIC	C
27	P03	Communications system continuity	GENERIC	A
28	P04	Early warning	FLOOD	C
29	P05	Continuity of education	FLOOD	C
30	P06	Emergency infrastructure and supplies	FLOOD	B
31	P07	Continuity of healthcare during disaster	FLOOD	B
32	P08	Forecasting	FLOOD	A
33	P09	Household protection and adaptation	FLOOD	B
34	P10	Availability of clean, safe water	FLOOD	C
35	P11	Waste management and risk	FLOOD	C
36	P12	Large scale flood protection	FLOOD	B
37	N01	Tree cover	GENERIC	D
38	N02	Permeable surfaces	GENERIC	C

No	Code	Resilience Sources	Hazard	Grade
39	N03	Land use planning	GENERIC	A
40	N04	Resource Management	GENERIC	B
41	N05	Land/water interface health	GENERIC	B
42	N06	Ecological management for disaster risk reduction	FLOOD	C
43	F01	Household access to discretionary funds	GENERIC	D
44	F02	Community financial health	GENERIC	C
45	F03	Local government financial capacity	GENERIC	B
46	F04	Public infrastructure maintenance budget	GENERIC	C
47	F05	Climate change adaptation planning and investment	GENERIC	A
48	F06	Business continuity	FLOOD	D
49	F07	Household income continuity	FLOOD	D
50	F08	Risk reduction investments	FLOOD	B
51	F09	Disaster insurance	FLOOD	D
52	F10	Disaster recovery budget	FLOOD	B

Source: Website-Based CRMC Application (2025)

Description:

- H: *Human*
- S: *Social*
- P: *Physical*
- N: *Natural*
- F: *Financial*

The Table IV.2 above shows the assessment results of 52 indicators or sources of resilience based on the lens of five capitals, namely human, social, physical, natural and financial capital. The number of indicators is determined by the selected hazard. If you choose flood, the indicator increases like that. These indicators are general and specific flood hazards with a value range ranging from A-D. A grade means good practice and a D means it is further below standard. After seeing the results above, it is necessary to analyse and understand further the strengths and weaknesses of the community based on the hazard resilience that has been measured through this CRMC tool. The analysis stage consists of identifying, prioritizing, and providing the most likely plan for intervention needs.

First, (1) identify the strengths and weaknesses of the community's sources of resilience. Second, (2) prioritize (priorities 1, 2, 3, and so on) which sources of resilience need to be focused on. Finally, (3) plan intervention needs by mapping sources of resilience that can be used to increase low scores to higher ones. It should be remembered that CRMC is one source of information that can be considered when deciding on an intervention, the most important thing is consideration of priority programs and ongoing development vision and mission, repeated experiences that occur in the community, risks, availability of funds, experts, and so on.

4.1 GAID Perspectives on Resilience Sources

GAID or Gender, Age, Inequity, Disability (gender, age, injustice, disability) influences disaster risk. Therefore, interventions that consider GAID elements are needed to achieve good resilience programs related to climate hazards. This stage includes looking at the profile of

GAID in the community and analysing the linkage of GAID to certain sources of resilience. This is done to enhance or improve interventions based on GAID. GAID data provides an opportunity to minimize marginalization of vulnerable groups, such as elderly women or children with disabilities. Interventions need to consider the needs of different groups of people to create resilience interventions that are gender specific, sensitive to age, inequality, disability and empower vulnerable groups. Power dynamics, ethnicity, religion, etc. can provide additional information regarding consideration of GAID-based programs and to identify gaps between community groups.

4.1.1 Profile of Respondents Disaggregated by GAID

The GAID profile consists of the context of gender, age, injustice and disability inherent in Degayu community respondents. The main respondent to see the profile of the Degayu community is through collecting household surveys. The following is the GAID profile of the Degayu community:

- Gender Context

Data collection is not limited to one particular gender but is based on conditions in the field when conducting household surveys. It can be seen below that the majority of respondents are women. This happened because the majority of those who answered the question were housewives. This is in line with data that the majority of people work as business owner (36%) and outdoors (28%). In addition, the majority are male-headed household (76%). It is assumed that the majority of those working are men so that the majority at home are housewives or women.

Table IV.3 Respondents by Gender

Gender	Numbers	Percentage
Female	77	64%
Male	44	36%
Total	121	100%

Source: Household Surveys Data Processed (2025)

Table IV.4 Numbers of Female-Headed Households in Degayu

Female-Headed Households	Numbers	Percentage
Yes	29	24%
No	92	76%
Total	121	100%

Source: Household Surveys Data Processed (2025)

There are 24% female headed household in the Degayu community, meaning there are families with deceased or divorced partners. Female heads have a double burden of having to take care of the family and being the main breadwinner. So far, none of the respondents in the Degayu community have admitted to experiencing social discrimination due to being widows.

- Age Context

The age categories at CRMC for respondents are 18-30 years, 31-65 years, and over 65 years. Disaggregation based on age is important to understand the gap in understanding flood risk, especially at vulnerable ages such as the elderly. Apart from that, programming targets are more precise to cover the gaps that occur. In this age range of respondents there is no age range for children and teenagers. Based on the

survey results, the majority of respondents were in the productive group or 31-65 years old that are 96 respondents. There are 14 elderly people and the lowest are 11 people in the 18-30 years age group. According to the household surveys, many retirees live in RW 08. The relatively cheaper land price factor compared to other areas causes people migrate to Dukuh Clumpit (RW 07 and 08). Assistance is provided by Degayu Subdistrict and Pekalongan City government for the elderly through programs such as PKH (Family Hope Program, BPNT (Non-Cash Food Assistance), and others. There are differences in the age groupings in the CRMC tool and the Indonesian Central Statistics Agency.

Table IV.5 Respondent by Age

Age	Numbers	Percentage
Age of 18-30	11	9%
Age of 31-65	96	79%
More than 65	14	12%
Total	121	100%

Source: Household Surveys Data Processed (2025)

- **Inequity Context**

These inequities include whether households identify as a minority or marginalized group. There are still some in the Degayu community who declare themselves to be a minority group. Respondents who identified themselves as minorities are those who felt marginalized due to having mental health disorders and their status as newcomers to this community.

Table IV.6 Household Members Identify as a Minority or Marginalized Groups

Identify as Minority	Numbers	Percentage
Yes	2	2%
No	117	97%
I don't know	2	2%
It's better not to say	0	0%
Total	121	100%

Source: Household Surveys Data Processed (2025)

- **Disabilities**

People with disabilities who are asked about in this CRMC tool are deaf or have serious hearing difficulties, blind or have difficulty seeing, cognitive impairments, and physical disabilities that interfere with daily mobility. There are also people with multiple or more disabilities, such as those who are deaf and mute. This question is asked to identify the number of people with disabilities in the household. People with disabilities often experience discrimination and are left behind in their communities, such as having difficulty getting jobs, health services and education. There are 11% or 13 individuals in the family who have one or more types of disabilities. According to enumerator notes, the types of disabilities reported include physical impairments such as visual impairments, leg disabilities, hearing loss, and deafness. Limitations in daily activities due to illness, such as stroke, as well as age-related conditions like dementia and limited mobility among the elderly, are also categorized as disabilities.

Table IV.7 Household Members with Disabilities

Household Members with Disabilities	Numbers	Percentage
No	108	89%

Yes, one or more	13	11%
Total	121	100%

Source: Household Surveys Data Processed (2025)

4.1.2 Interrelation between GAID and Certain Resilience Sources

Data based on GAID is inclusive for all community groups. It is said to be inclusive if it includes everyone, ensures that there are no biases and vulnerable groups are excluded, and returns the results of this process to society to empower and articulate the needs of all groups more clearly. CRMC provides 19 of 52 GAID-specific indicators or sources of resilience. The following is a disaggregation of resilience sources based on GAID.

Table IV.8 GAID-Specific Resilience Sources

No	Code	Resilience Sources	Grade
1	H07	Hazard exposure awareness	A
2	S11	Response planning	A
3	S14	Risk mapping	A
4	H01	Secondary school attendance	B
5	H03	First aid knowledge	B
6	H09	Evacuation and safety knowledge	B
7	H10	Unsafe water awareness	B
8	S03	Community safety	B
9	S06	Healthcare accessibility	B
10	S13	Stakeholder engagement in risk management	B
11	P06	Emergency infrastructure and supplies	B
12	P07	Continuity of healthcare during disaster	B
13	P09	Household protection and adaptation	B
14	H02	Food availability	C
15	S02	Social inclusiveness of disaster risk management	C
16	S07	Trust in local authorities	C
17	S08	Intra-community equity	C
18	S09	Inter-community equity	C
19	S12	Family violence and response planning	D

Source: Website-Based CRMC Application (2025)

GAID specific sources of resilience include human, physical, social capital only. In the assessment, the majority of GAID-specific resilience sources were graded as A, followed by B and C. There is only one grade D, that is family violence and emergency response planning.

- Best Practices of GAID-Specific Resilience Resource

1. Hazard Exposure Awareness

This resilience source asks where and when flooding is likely to occur. The Degayu community generally knows which locations are potentially prone to flooding. Before the embankment was built, the entire community area was prone to flooding caused by rising sea levels and inundation due to high rainfall intensity. The most affected area was Dukuh Clumprit (RW 07 and 08), this happened because the area is in a lower

elevation or basin-like topography. In terms of gender, there was no significant difference between men and women except that 5% of female respondents do not know the potential flood locations. This happened because it is currently handled by the embankment that can overcome tidal flooding since mid-2024. From an age perspective, the older the age group, the higher the number of respondents who are unaware of potential flood-prone areas. There are 8% of the age group 66 years and over and 3% of the age group 31-65 years who do not know the potential flood locations.

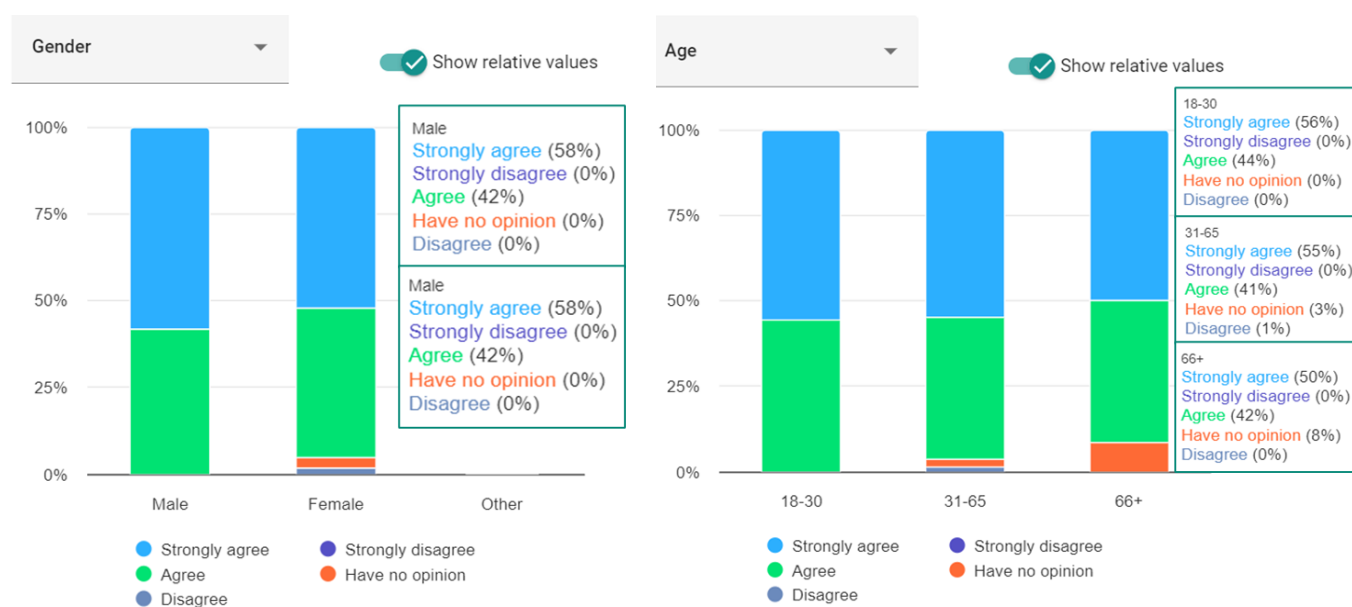


Figure IV.3 Knowledge of Areas Most Affected by Flooding

Source: Website-Based CRMC Application (2025)

2. Response Planning

This source of resilience is used to measure whether there is a flood emergency response plan for the community that includes targeted strategies to address the needs of all groups, including vulnerable groups. In addition, it measures if the plan is reviewed periodically by involving key stakeholders. This question is answered through FGD, key informant interviews, and secondary data. FGD participants were represented by the community council (BKM), community leader, community productive users, elder's group but not present, local NGO/CBO (KSB and local public figure), society (represented by disabilities and children's forum), women group, and youth group. The composition of participants has accommodated gender aspects, through the involvement of the children's forum and youth group, as well as disability aspects (representatives of person with disabilities). While key informant interviews were represented by BPBD and KSB.

In FGD, all participants answered that there was a flood emergency response plan in Degayu, the plan covered the needs of all community groups and was updated regularly. This finding was confirmed through key informant interviews with BPBD and KSB who confirmed this condition. BPBD explained that in the BPBD disaster risk assessment document which also explained aspects of emergency response implementation, BPBD regularly updates data on vulnerable groups, especially with regard to age groups and pregnant women. A gap remains in the tracking of disability-related data, where BPBD is only able to provide the number of persons with

disabilities, without details on the types of disabilities. This report is updated regularly every five years. According to BPBD, the presents of embankment in Degayu may also lead to a lower risk classification for the area. This is because Degayu is now protected by the sea wall, which eliminates the hazard of tidal flooding.

3. Risk Mapping

This resilience resource measures whether flood risk mapping has been carried out and whether the results are used in flood risk planning and management actions. The method for answering this source of resilience is key informant interviews and secondary data. Key informant interviews were asked to members of the community council, head of Degayu, BPBD, and BAPPEDA. The Degayu flood risk map has been produced by BPBD and includes vulnerability components. BAPPEDA uses the map in development planning and BPBD uses the map in risk management actions. When a vulnerability component is identified, the mapping process also includes GAID aspects.

- Below Standard GAID-Specific Resilience Sources

1. Family Violence and Response Planning

So far, there is no flood emergency response plan that includes preventing domestic violence in Indonesia, including Pekalongan City, both from BPBD and DPMPPA. Pekalongan City there has been no planning related to protection on domestic violence linked to emergency response. However, BPBD personnel have received socialization or training related to preventing domestic violence at shelter. In addition, DPMPPA advocates for gender mainstreaming to agencies such as training on the child rights convention, one of them is indicator or special protection that is implemented by, for example, a friendly evacuation route and a child-friendly room/space. The realization of this implementation depends on the availability of the budget. The realization was once carried out at shelter in West Pekalongan District that provided a child-friendly room.

Regarding the statement that there is an increase in domestic violence cases during disasters, according to DPMPAA, there is no direct causality between the two. An increase cases in domestic violence can be triggered by high pressure conditions, such as natural disasters, which lead to behavioural changes, including irritability and difficulty accepting reality. This creates an environment in which domestic violence may occur.

4.2 Identifying the SO-WN of Community Resilience Sources

This stage analyzes the strengths-opportunities (SO) and weaknesses-needs (WN) of all the lenses being assessed. Later, each source of resilience will be reviewed from various lenses and identified according to the strength (SO) or weakness (WN) of the source of resilience. Before going into the SO-WN matrix of various lenses, the table below shows the relevance of sources of resilience in the community as well as the identification of SO-WN from the lens of five capitals consisting of 52 sources of resilience. From the results of observations, it was found that the source of resilience with a value of A is a source of strength (S) and not all Grade B, C and D are weaknesses (W). The following is the explanation.

Table IV.9 Relevance and Identification of Resilience Sources

No	Code	Resilience Sources	Grade	Contextual Relevance	SO-WN	Description
1	H06	Awareness of how nature mitigates risk	A	Yes	S	Community awareness of the fact that a healthy natural environment can reduce flood risks is already well established
2	H07	Hazard exposure awareness	A	Yes	S	The community knows which areas were previously (before the embankment was built) prone to flooding, the most vulnerable being Clumpit (RW 07 and 08).
3	S05	Disaster response personnel	A	Yes	S	According to BPBD, training and simulation at the subdistrict level are sufficient for volunteers. There is a KSB Decree in the RTD (Emergency Response Plan) document.
4	S10	Risk reduction planning	A	Yes	S	The city-level disaster risk assessment document is made for 5 years, if there are changes within that period, it will be updated according to actual conditions. However, there is no specific document for each sub-district.
5	S11	Response planning	A	Yes	S	The sub-district level Emergency Response Plan (RTD) document includes details on types of training, evacuation routes, and the official decree for the KSB. In addition, a Tagana (Disaster Preparedness Cadet) unit is present in Degayu Sub-district.
6	S14	Risk mapping	A	Yes	S	There are risk, hazard, vulnerability mapping, and evacuation routes.

No	Code	Resilience Sources	Grade	Contextual Relevance	SO-WN	Description
7	S15	Disaster impact data collection and use	A	Yes	S	The latest DKRB (Disaster Risk Assessment Document) from BPBD has not taken into account the impact of the newly constructed embankment, as it was only completed in 2024. The upcoming update is expected to change the hazard status. Disaster-related data is used for regional planning purposes. To accommodate the impact of embankment construction, the RPJMD considers projected sea level rise as a form of future climate disaster mitigation.
8	P01	Energy supply continuity	A	Yes	S	Flooding does not affect the availability of energy supplies (electricity, fuel, LPG, and others).
9	P03	Communications system continuity	A	Yes	S	Floods do not affect the quality of communication networks.
10	P08	Forecasting	A	Yes	S	Official information from BMKG and BPBD is distributed through social media and WhatsApp groups that can reach the sub-district. The sub-district government will channel it to the RT/RW head to be distributed to the RT/RW WhatsApp group.
11	N03	Land use planning	A	Yes	S	Development in Degayu has been aligned with the Spatial Plan (RTRW), and the available infrastructure corresponds to the designated plots in the plan. The community was involved in the preparation of the Detailed Spatial Plan (RDTR). The RDTR takes into account projected seawall overflow, land subsidence, and seawall durability.
12	F05	Climate change adaptation planning and investment	A	Yes	S	The POKJA PI (Climate Change Working Group) at the city level held a meeting to track activities that can support climate change adaptation from NGOs and agencies so the adaptation program can be sustainable. BAPPEDA already has a budget tagging related to climate change actions.
13	H01	Secondary school attendance	B	Yes	S	97% of students regularly attend school. Flooding does not diminish the students' enthusiasm for learning, as the Degayu official borrows trucks from the Satpol PP to transport students to school.
14	H03	First aid knowledge	B	Yes	S	There is a relatively high number of 6-8% of the community who have attended first aid training. Based on the Basic Training Curriculum Book for Disaster Response Volunteers issued by BNPB (2011), the basic competencies of disaster response

No	Code	Resilience Sources	Grade	Contextual Relevance	SO-WN	Description
						volunteers include understanding the concept of disaster, the main tasks of volunteers, practicing organizing public kitchens, emergency housing, first aid, logistics and equipment, psychosocial assistance, and radio communication.
15	H04	Awareness of need for climate change action	B	Yes	O	The community is aware that waste can clog water flow, and there are waste collectors operating in Degayu. However, awareness about not littering remains low.
16	H05	Awareness of climate change risk	B	Yes	O	There are still people who do not know and do not agree that climate change will increase various types of disasters including floods. This is because people already feel safe with the existence of the embankment.
17	H09	Evacuation and safety knowledge	B	Yes	O	The majority of the community knows when to evacuate. However, some still choose to stay at home, the reasons are the unpredictable nature of floods which can occur suddenly, discomfort at shelter, being accustomed to flooding, and the need to protect their belongings (even if they have already moved to higher places). Authorities have taken initiatives such as public awareness campaigns, announcements at mosques, and actively retrieving flood victims from affected areas.
18	H10	Unsafe water awareness	B	Yes	N	RW 02 and RW 04 face issues related to the lack of individual septic tanks. Household waste is directly discharged into the river, and public latrines along the riverbanks are still in use. In Clumpit, there are still residential areas that remain inundated due to the low-lying terrain, exacerbated by the community's habit of dumping waste in the area, which contributes to unsanitary living conditions. Residents whose homes, including latrines, have not been elevated are forced to defecate openly, which can lead to skin diseases. However, access to clean water is relatively secure, as the community water supply system (PAMSIMAS) is not disrupted during floods.
19	S01	Mutual support	B	Yes	S	Community members are able to rely on one another. Some borrow food on credit from local food stalls when they cannot afford to eat. In case of an emergency, neighbours often lend their vehicles to help those in need.

No	Code	Resilience Sources	Grade	Contextual Relevance	SO-WN	Description
20	S03	Community safety	B	Yes	O	In 2023 and 2024, teenagers committed thefts in Clumprit. Den Asri (RW 04) is a vulnerable border area between Pekalongan and Batang.
21	S06	Healthcare accessibility	B	Yes	S	There is a sub-community health center (Puskesmas Pembantu Degayu) located adjacent to the Degayu sub district office. A shelter is also available at the sub district office. Access barriers may arise during severe flooding, particularly in low-lying areas such as Clumprit. The Universal Health Coverage (UHC) system has been implemented, allowing residents to access healthcare services using only their national ID card (KTP).
22	S13	Stakeholder engagement in risk management	B	Yes	N	Most key stakeholders such as from related agencies and communities have been involved in disaster risk management. However, it is still a challenge to involve the private sector in this matter.
23	P06	Emergency infrastructure and supplies	B	Yes	S	Most of the equipment is owned by the BPBD, located approximately 5–7 km away, allowing for quick response in case of an emergency. The equipment is generally well-maintained, but not everyone can access or operate it, as it requires specific skills and expertise.
24	P07	Continuity of healthcare during disaster	B	Yes	S	A proactive outreach method is used due to limited access caused by flooding in hard-to-reach areas such as Clumprit. In Degayu, only a sub-health center (Pustu) is available, with an emergency health post stationed at the village hall.
25	P09	Household protection and adaptation	B	Yes	N	On average, residents have elevated their homes 1 to 4 times, with each elevation adding about 1 to 1.5 meters in height. Some anticipated the issue by building their homes higher from the start. While some received support from the Family Hope Program (PKH - Program Keluarga Harapan), others only raised certain parts of their houses.
26	P12	Large scale flood protection	B	Yes	O	The northern Pekalongan area is already protected by a combination of reliable hard infrastructure. Batang Regency refused to build the embankment, so currently the water is moving eastward causing new flooding in areas not protected by the embankment.

No	Code	Resilience Sources	Grade	Contextual Relevance	SO-WN	Description
27	N04	Resource Management	B	Yes	N	Currently, most areas in Degayu are dry, which calls for efforts to restore the land that had been submerged for a long time.
28	N05	Land/water interface health	B	Yes	S	The river has been dredged to remove sedimentation, and a trash filter has been installed to prevent damage to the pumps. There is one pump house managed by the BBWS in Loji Banger and 45 others owned by the Pekalongan City Government.
29	F03	Local government financial capacity	B	Yes	N	The government's financial resources are limited, but the establishment of the Climate Change Working Group (Pokja PI) opens up opportunities for sustainable climate action, not only by government agencies but also by other stakeholders such as NGOs.
30	F08	Risk reduction investments	B	Yes	O	The Pekalongan City Government consistently makes efforts to address flooding, although these efforts are not always funded through the regional budget (APBD) or in the form of direct financial assistance.
31	F10	Disaster recovery budget	B	Yes	O	Sourced from the APBD and opening up opportunities for other non-government sources.
32	H02	Food availability	C	Yes	W	97% of total household income is IDR 3,000,000-IDR 102,375,000/year with an average number of family members of 4 people. There are elderly and poor families who receive PKH (Family Hope Program) assistance.
33	S02	Social inclusiveness of disaster risk management	C	Yes	N	Minority groups tend to feel intimidated or lack confidence in public forums. However, the neighbourhood heads (RT and RW) already represent their communities, including minority groups, making their representation considered sufficient. In forums, specific community groups are typically represented by their respective leaders.
34	S04	Local leadership	C	Yes	N	From RT, RW, to Degayu officials has paid attention to the area, including the construction of embankments, the provision of pump houses, assistance for the poor, and the house renovation

No	Code	Resilience Sources	Grade	Contextual Relevance	SO-WN	Description
						program through the Special Allocation Fund (DAK) in the Clumprit area. The government budget has been heavily allocated to Degayu, especially Clumprit. Although various forms of assistance have been provided, economic recovery for the community is still not optimal. Additionally, sanitation issues remain in RW 02.
35	S07	Trust in local authorities	C	Yes	N	The level of trust the community has in the police is low, while the trust in the Degayu officials, as well as in emergency response, is high.
36	S08	Intra-community equity	C	No	-	There is no difference in job and education opportunities in the Degayu community.
37	S09	Inter-community equity	C	No	-	There is no difference in employment and education opportunities between the Degayu community and surrounding areas.
38	P02	Transportation system continuity	C	No	-	There is no public transportation in Degayu. Currently, the area is dry and accessible by motorized vehicles. During flooding, residents rely on trucks from the municipal police (Satpol PP) and boats.
39	P04	Early warning	C	Yes	N	Community members receive disaster-related information—such as weather forecasts from BMKG, evacuation warnings, and assistance (like access to health services)—primarily through WhatsApp groups managed by RT/RW leaders and mosque loudspeakers.
40	P05	Continuity of education	C	Yes	N	The continuity of education during the flooding was not disrupted, as the schools were not inundated except for Clumprit Preschool (PAUD). Only the access routes to the schools were possibly submerged.
41	P10	Availability of clean, safe water	C	Yes	N	The Pamsimas system remained unaffected during the flood, as most drinking water uses gallons. However, some households in RW 02 do not have septic tanks.
42	P11	Waste management and risk	C	Yes	W	The community believes that waste does not worsen flooding due to the presence of the embankment and the fact that garbage is collected by waste collectors. The discourse about

No	Code	Resilience Sources	Grade	Contextual Relevance	SO-WN	Description
						the closure of the Degayu landfill (TPA) is expected to create new issues, such as an increase in littering behaviour among residents and the loss of livelihood for waste collectors.
43	N02	Permeable surfaces	C	Yes	W	The mangrove condition at Cemorsewu Beach remains good, but only in specific areas.
44	N06	Ecological management for disaster risk reduction	C	No	-	This is not relevant for this community, as it is a coastal area. The context of this source of resilience is the highland area.
45	F02	Community financial health	C	Yes	W	29% of respondents are in the low-income category, while 65% belong to the middle-income group. The majority are self-employed or work in outdoor and semi-outdoor occupations (such as labourers).
46	F04	Public infrastructure maintenance budget	C	Yes	W	The budget is insufficient and the handling of infrastructure is accidental. This does not mean the allocation is unjust. The efficiency that applies in 2025 causes the allocation of public infrastructure to decrease.
47	S12	Family violence and response planning	D	No	-	There has not yet been an inclusion of domestic violence issues in emergency response planning in Indonesia.
48	N01	Tree cover	D	Yes	W	Vegetation is very limited due to the impact of flooding for decades (10 years). The land is currently being restored from its previous use as a pond to agricultural land.
49	F01	Household access to discretionary funds	D	Yes	W	Only 21% of households have savings.
50	F06	Business continuity	D	Yes	W	The largest type of employment among respondents is self-employment (36%). During floods, some businesses cannot operate because they lack alternative business models during disaster disruptions.
51	F07	Household income continuity	D	Yes	N	Currently, there are no floods, but during the floods, 45% of community members were unable to work, and 13% lost their livelihoods. The majority of the work is self-employment, outdoor work, and semi-indoor work.
52	F09	Disaster insurance	D	No	-	Community members are unlikely to have disaster insurance due to their generally low to middle-income earnings.

Source: Analysis by IKUPI (2025)

There are six sources of resilience that are not relevant for the Degayu community, namely, Intra-community justice (S08), Inter-community justice (S09), Sustainability of the transportation system (P02), Ecological management for disaster risk reduction (N06), Family violence and emergency response planning (S12), and Disaster insurance (F09). All sources of resilience with Grade A are strengths (S), Sources of resilience which have Grade B and C, they have a varied distributing starting from strengths (S) – only in Grade B, opportunities (O), needs (N), and weaknesses (W). So, from the SO-WN mapping of the five capitals, it can be reduced to a SO-WN matrix of resilience sources from various lenses consisting of the five capital lenses themselves, community context, disaster management cycle, 4R, 7 themes, city resilience index, and specific GAID. The following is the explanation.

Table IV.10 SO-WN Analysis of Resilience Sources in Different Lenses

SO/WN	Five Modals	Community Context	DRM Cycle	Resilience – 4Rs	7 Theme	City Resilience Index	GAID-Specific
Strengths/ Opportunities	Strength: 1. Human (Grade A: H06, H07; Grade B: H01, H03) 2. Social (Grade A: S05, S10, S11, S14, S15; Grade B: S01, S06) 3. Physical (Grade A: P01, P03, P08; Grade B: P06, P07) 4. Natural (Grade A: N03; Grade B: N05) 5. Financial (Grade A: F05) Opportunities: 1. Human (Grade B: H04, H05, H09) 2. Social (Grade B: S03) 3. Physical (Grade B: P12) 4. Financial (Grade B: F08, F10)	1. Enabling Environment 2. Community Level	1. Prospective Risk Reduction 2. Preparedness 3. Response 4. Recovery 5. Corrective Risk Reduction	1. Resourcefulness 2. Robustness 3. Rapidity 4. Redundancy	1. Assets 2. Life and Health 3. Natural Environment 4. Livelihoods 5. Social Norms 6. Lifelines 7. Governance	1. Redundant 2. Robust 3. Integrated 4. Inclusive 5. Reflective 6. Resourceful 7. Flexible	Certain modal considers GAID aspects.

SO/WN	Five Modals	Community Context	DRM Cycle	Resilience – 4Rs	7 Theme	City Resilience Index	GAID-Specific
Needs/ Weaknesses	Needs: 1. Human (Grade B: H10) 2. Social (Grade B: S13; Grade C: S02, S04, S07) 3. Physical (Grade B: P09; Grade C: P04, P05, P10) 4. Natural (Grade B: N04) 5. Financial (Grade B: F03; Grade D: F07) Weaknesses: 1. Human (Grade C: H02) 2. Physical (Grade C: P11) 3. Natural (Grade C: N02; Grade D: N01) 4. Financial (Grade C: F02, F04; Grade D: F01, F06)	1. Enabling Environment 2. Community Level	1. Prospective Risk Reduction 2. Preparedness 3. Response 4. Recovery 5. Corrective Risk Reduction	1. Resourcefulness 2. Robustness 3. Rapidity 4. Redundancy	1. Assets 2. Life and Health 3. Natural Environment 4. Livelihoods 5. Social Norms 6. Lifelines 7. Governance	1. Redundant 2. Robust 3. Integrated 4. Inclusive 5. Resourceful 6. Flexible	Only few considers GAID aspects.

Source: Analysis by IKUPI (2025)

4.4 Grouping Intervention Priority

Intervention prioritization is carried out by eliminating sources of resilience that are already strong (S) and sources of resilience that are not relevant to the community. Intervention priorities only focus on sources of resilience that can be added or strengthened (W and O), and their level value improved or increased (N). Priorities are divided into three classes, namely priority 1, priority 2, and priority 3. Priority 1 means increasingly prioritized. Priority analysis is the accumulation of scores from the lens of the five capitals; community context, and the disaster management cycle only. The five-modal lens using a Likert scale (5 classes) will be explained below, the community context is given a score of 5 for the community level, meaning it shows a very big impact on the community, and a score of 4 shows a quite big impact on the community. The disaster management cycle lens prioritizes the initial stage with the highest value (5) and the last stage of the cycle has a value of 1. The following is a description of each lens score description.

Table IV.11 Description of Intervention Priority Score

Score	Contextual Impact of Resilience Sources	Community Context	DRM Cycle
5	It has a huge impact and affects many people.	Community level	Prospective Risk Reduction
4	It has a significant impact and affects many people.	Enabling environment	Preparedness
3	Approximately 50% impacted the community.		Response
2	Minimum impact to the community.		Recovery
1	Negligible impact to the community.		Corrective Risk Reduction

Source: Analysis by IKUPI (2025)

After eliminating strengths and irrelevance sources to the Degayu community, the total score for the three lenses was obtained. The greater the total score indicates the higher the priority in establishing interventions. The highest total score is 14 and the lowest is 8, so we get priority 1 with a total score range of 12-14, priority 2 with a total score range of 10-11 and priority 3 with a total score range of 8-9. So, the following priorities are obtained:

Table IV.12 Grouping Proposed Intervention Priorities

No	Code	Resilience Sources	Community Context	DRM Cycle	Total Score	Priority
1	H05	Awareness of climate change risk	Community level	Prospective Risk Reduction	14	Priority 1
2	S13	Stakeholder engagement in risk management	Community level	Preparedness	14	Priority 1
3	F02	Community financial health	Community level	Preparedness	14	Priority 1
4	F06	Business continuity	Community level	Preparedness	14	Priority 1
5	F07	Household income continuity	Community level	Preparedness	14	Priority 1
6	N04	Resource Management	Enabling environment	Prospective Risk Reduction	14	Priority 1
7	F04	Public infrastructure maintenance budget	Enabling environment	Prospective Risk Reduction	14	Priority 1
8	S02	Social inclusiveness of disaster risk management	Community level	Prospective Risk Reduction	13	Priority 1
9	S04	Local leadership	Community level	Preparedness	13	Priority 1
10	H04	Awareness of need for climate change action	Enabling environment	Prospective Risk Reduction	13	Priority 1
11	F03	Local government financial capacity	Enabling environment	Preparedness	13	Priority 1
12	F01	Household access to discretionary funds	Community level	Response	12	Priority 1
13	P04	Early warning	Enabling environment	Preparedness	12	Priority 1
14	P11	Waste management and risk	Enabling environment	Response	11	Priority 2
15	H02	Food availability	Enabling environment	Response	11	Priority 2
16	H09	Evacuation and safety knowledge	Community level	Preparedness	11	Priority 2
17	H10	Unsafe water awareness	Community level	Response	11	Priority 2
18	S03	Community safety	Community level	Recovery	11	Priority 2
19	S07	Trust in local authorities	Community level	Response	10	Priority 2
20	P10	Availability of clean, safe water	Enabling environment	Response	10	Priority 2
21	N01	Tree cover	Enabling environment	Corrective Risk Reduction	10	Priority 2
22	F10	Disaster recovery budget	Enabling environment	Recovery	10	Priority 2
23	P12	Large scale flood protection	Enabling environment	Corrective Risk Reduction	9	Priority 3
24	P09	Household protection and adaptation	Community level	Corrective Risk Reduction	9	Priority 3
25	N02	Permeable surfaces	Enabling environment	Corrective Risk Reduction	9	Priority 3
26	F08	Risk reduction investments	Enabling environment	Corrective Risk Reduction	9	Priority 3

No	Code	Resilience Sources	Community Context	DRM Cycle	Total Score	Priority
27	P05	Continuity of education	Enabling environment	Recovery	8	Priority 3

Source: Analysis by IKUPI (2025)

This priority is obtained purely from the CRMC process using a scoring method in determining prioritization. These initial priorities are used as a reference in compiling interventions and then a pre-feasibility study will be carried out according to resource availability, costs, time, technological capabilities, expertise, relevance to the ZCRA program being and/or being run by Mercy Corps Indonesia. The discussion regarding this alignment will be continued in the next chapter.

CHAPTER V

Action Plan to Implement Prioritized Interventions

This section outlines a set of activities or interventions to build community resilience to climate change. Interventions can take the form of infrastructure, tools, technology, methods or approaches, or systems. Interventions can relate to other sources of resilience, more than one theme or other capital. The results of the assessment can be used to explore and identify sources of resilience or themes which have the greatest resilience needs and opportunities that can be intervened. This is done by looking at strong and weak areas, interactions between sources of resilience, and opportunities to overcome problems of concern in the Degayu community. Not all strengths are opportunities and not all weaknesses need intervention. The follow-up to this intervention is developing action plan. There are sources of resilience that are not relevant in the Degayu community, such as one source of natural resilience, namely regarding ecological management for disaster risk reduction. In addition, slope management is no longer relevant in this community because the study area is a coastal which has no a significant slope.

In chapter IV, the priority of sources of resilience that will be intervened in this chapter has been determined. Interventions are arranged based on the priority of resilience sources through the CRMC assessment process. Priorities and interventions based on the CRMC study are in columns 2 and 3 (Table V.1). then a pre-feasibility study was conducted with the Mercy Corps Indonesia team which was carried out on March 25 2025. This agenda was carried out to align interventions based on the CRMC study with the ZCRA Program. At this stage, new priorities and interventions emerged which are in columns 4 and 5 in Table V.1. the new priority is to seek interventions that can be followed up by Mercy Corps Indonesia and other actors. Other actors can follow up on interventions that are relevant or irrelevant to the ZCRA program but important for the community context. Table V.1 presents a comparison between the interventions proposed in the CRMC assessment and those adjusted during the pre-feasibility study, including detailed descriptions.

Table V.1 Comparison of Proposed Intervention before and After Pre-Feasibility Study

No	Proposed Priority	Proposed Intervention	Priority after Pre-Feasibility Alignment	Interventions after Pre-Feasibility Alignment
1	Priority 1	Engaging community participation in the maintenance of the Loji-Banger Flood Control System, such as through the establishment of a working group (Pokja) (H05)	Priority 1	Engaging community participation in the maintenance of the Loji-Banger Flood Control System, such as through the establishment of a working group (Pokja) (H05)
2	Priority 1	Conducting participatory flood risk mapping activities (H05)	Priority 1	Conducting participatory flood risk mapping activities (H05)
3	Priority 1	Promoting climate-resilient agriculture and aquaculture systems (H05)	Priority 1	Development of adaptive and conservation-based aquaculture practices (H05)
4	Priority 1	Collaboration with startups or tech companies for the development of IoT-based early warning systems (S13)	Priority 1	Collaboration with startups or tech companies for the development of IoT-based early warning systems (S13)
5	Priority 1	Mainstreaming flood mitigation components into Environmental Impact Assessments (AMDAL) in flood-prone areas (S13)	Priority 1	Mainstreaming flood mitigation components into Environmental Impact Assessments (AMDAL) in flood-prone areas (S13)
6	Priority 1	KSB, NGOs, and the subdistrict officials encourage community initiatives for greening and land restoration after the construction of the embankment (S13)	Priority 1	KSB, NGOs, and the subdistrict officials encourage community initiatives for greening and land restoration after the construction of the embankment (S13)
7	Priority 1	Develop collaboration between the city, district, and provincial governments as well as other actors (S13)	Priority 1	Develop collaboration between the city, district, and provincial governments as well as other actors (S13)
8	Priority 1	Development of conservation-based ecotourism around the embankment (F02)	Priority 1	Development of conservation-based ecotourism around the embankment (F02)

No	Proposed Priority	Proposed Intervention	Priority after Pre-Feasibility Alignment	Interventions after Pre-Feasibility Alignment
9	Priority 1	Encouraging companies to allocate CSR funds for business mentoring, capital support, and market access for MSMEs in Degayu (F02)	Priority 1	Encouraging companies to allocate CSR funds for business mentoring, capital support, and market access for MSMEs in Degayu (F02)
10	Priority 1	Community assistance for those diversifying livelihoods after the construction of the sea wall (from fishers/farmers to agricultural producers) (F02)	Priority 1	Implementing adaptive aquaculture models in Degayu following the construction of the sea wall (F02)
11	Priority 1	Encouraging micro-business credit programs with low-interest rates in collaboration with banks or fintech companies (F06)	Priority 1	Building collaboration with potential markets/offtakers, financial service institutions, digital tool providers, technical experts that can finance business entities and offer technical consultation and market expansion services, particularly in the aquaculture sector and other flagship programs (F06)
12	Priority 1	Education on financial management and planning for MSMEs (F06)	Priority 1	
13	Priority 1	Training on digital marketing/e-commerce and partnering with the private sector (F06)	Priority 1	
14	Priority 1	Facilitate access to production goods (e.g., farmers to fertilizers, fish farmers to fry (baby fish), batik entrepreneurs to mori/white fabric) (F06)	Priority 1	
15	Priority 1	Establishment of community financial cooperatives or savings groups (F06)	Priority 1	Establishment of community financial cooperatives or savings groups (F06)
16	Priority 1	Facilitation of incentives for businesses implementing waste management (F06)	Priority 1	Facilitation of incentives for businesses implementing waste management (F06)

No	Proposed Priority	Proposed Intervention	Priority after Pre-Feasibility Alignment	Interventions after Pre-Feasibility Alignment
17	Priority 1	Encouraging alternative livelihoods for the coastal community of Degayu whose livelihoods are disrupted due to environmental disruptions (F07)	Priority 1	Encouraging alternative livelihoods for the coastal community of Degayu whose livelihoods are disrupted due to environmental disruptions (F07)
18	Priority 1	Collaborating with BLK (Vocational Training Center) for creative economy training programs for Degayu community (F07)	Priority 1	Collaborating with BLK (Vocational Training Center) for creative economy training programs for Degayu community (F07)
19	Priority 1	Utilizing dried-out land for agriculture or livestock farming (F07)	Priority 1	Utilizing dried-out land for agriculture or livestock farming (F07)
20	Priority 1	Encouraging the community to plant productive crops that are tolerant to high salinity conditions (N04)	Priority 1	Encouraging the community to plant productive crops that are tolerant to high salinity conditions (N04)
21	Priority 1	Planting mangroves in coastal areas that are still feasible for rehabilitation (e.g., Pantai Cemorsewu) (N04)	Priority 1	Developing adaptive and conservation-based aquaculture practices by promoting the strengthening of subdistrict-level policies that support sustainable coastal area management (N04)
22	Priority 1	Promoting the construction of infiltration wells to address seawater intrusion (N04)	Tidak layak	Promoting the construction of infiltration wells to address seawater intrusion (N04)
23	Priority 1	Controlling land-use changes around the sea wall (e.g., the emergence of new settlements in newly dried areas) (N04)	Priority 1	Controlling land-use changes around the sea wall (e.g., the emergence of new settlements in newly dried areas) (N04)
24	Priority 1	Facilitating stakeholders in the City of Pekalongan to access alternative funding sources for climate resilience-related activities (F04)	Priority 1	Facilitating stakeholders in the City of Pekalongan to access alternative funding sources for climate resilience-related activities (F04)

No	Proposed Priority	Proposed Intervention	Priority after Pre-Feasibility Alignment	Interventions after Pre-Feasibility Alignment
25	Priority 1	Regularly collecting data on vulnerable groups, especially persons with disabilities, including types of disabilities (S02)	Priority 1	Regularly collecting data on vulnerable groups, especially persons with disabilities, including types of disabilities (S02)
26	Priority 1	Conduct disaster preparedness training and education tailored to the needs of vulnerable groups (S02)	Priority 1	Conduct disaster preparedness training and education tailored to the needs of vulnerable groups (S02)
27	Priority 1	Involve vulnerable groups in FGDs and subdistrict-level meetings (S02)	Priority 1	Actively involving vulnerable groups in participatory activities to enhance climate resilience at the subdistrict level (S02)
28	Priority 1	Allocate community self-help funds for social and environmental programs (S04)	Priority 2	Allocate community self-help funds for social and environmental programs (S04)
29	Priority 1	Raise awareness on proper waste disposal behaviour (H04)	Priority 2	Raise awareness on proper waste disposal behaviour (H04)
30	Priority 1	Educate and provide organic fertilizers to farmers (H04)	Priority 2	Educate and provide organic fertilizers to farmers (H04)
31	Priority 1	Provide education on climate-adaptive aquaculture (H04)	Priority 1	Provide education on climate-adaptive aquaculture (H04)
32	Priority 1	Encourage the effective use of CSR or other donor funds to improve sustainable and environmentally friendly flood infrastructure financing (F03)	Priority 1	Encourage the effective use of CSR or other donor funds to improve sustainable and environmentally friendly flood infrastructure financing (F03)
33	Priority 1	Assist in the preparation of climate resilience development programs (F03)	Priority 1	Assist in the preparation of climate resilience development programs (F03)
34	Priority 1	Increase public literacy on finance and long-term investment (F01)	Priority 1	Improving capacity through training in business management, financial management, access to financing, and strengthening financial institutions (F01)

No	Proposed Priority	Proposed Intervention	Priority after Pre-Feasibility Alignment	Interventions after Pre-Feasibility Alignment
35	Priority 1	Strengthen savings and loan institutions at the subdistrict level (F01)	Priority 2	Strengthen savings and loan institutions at the subdistrict level (F01)
36	Priority 1	Training for KSB and subdistrict officials on distributing information to the community, including through door-to-door communication, loudspeakers, and WhatsApp groups (P04)	Priority 1	Training for KSB and subdistrict officials on distributing information to the community, including through door-to-door communication, loudspeakers, and WhatsApp groups (P04)
37	Priority 1	Awareness campaigns on the use of early warning data at the community level, particularly targeting fisherfolk and aquaculture groups (P04)	Priority 1	Integrating GEDSI perspectives into the development of climate information systems for conservation-based agriculture and aquaculture through participatory processes (P04)
38	Priority 1	Awareness campaigns on the use of climate information systems at the community level, especially for fisherfolk and aquaculture groups (P04)	Priority 1	Awareness campaigns on the use of climate information systems at the community level, especially for fisherfolk and aquaculture groups (P04)
39	Priority 2	Training on collective composting of household waste (P11)	Priority 2	Training on collective composting of household waste (P11)
40	Priority 2	Reactivation of community clean-up activities and coastal area cleaning (P11)	Priority 2	Reactivation of community clean-up activities and coastal area cleaning (P11)
41	Priority 2	Multi-stakeholder involvement in the waste management activity chain (P11)	Priority 2	Multi-stakeholder involvement in the waste management activity chain (P11)
42	Priority 2	Provision of non-financial incentives to community groups active in environmental cleanliness (P11)	Tidak layak	Provision of non-financial incentives to community groups active in environmental cleanliness (P11)
43	Priority 2	Optimization of TPS3R (3R Waste Management Site) and TPST (Integrated Waste Management Site) (P11)	Priority 2	Revitalization and optimization of TPS3R & TPST using environmentally friendly technologies (P11)
44	Priority 2	Utilization of home yards for hydroponic vegetable farming (H02)	Priority 2	Utilization of home yards for hydroponic vegetable farming (H02)

No	Proposed Priority	Proposed Intervention	Priority after Pre-Feasibility Alignment	Interventions after Pre-Feasibility Alignment
45	Priority 2	Development of collective food gardens (H02)	Priority 2	Development of collective food gardens (H02)
46	Priority 2	Regular provision of public/community kitchens (H02)	Tidak layak	Regular provision of public/community kitchens (H02)
47	Priority 2	Socialization of zero waste food programs (H02)	Priority 2	Socialization of zero waste food programs (H02)
48	Priority 2	Regular dissemination of information in the form of videos or posters regarding the importance of evacuation, evacuation mechanisms, visualization of shelters and their facilities through WhatsApp Groups (H09)	Priority 2	Regular dissemination of information in the form of videos or posters regarding the importance of evacuation, evacuation mechanisms, visualization of shelters and their facilities through WhatsApp Groups (H09)
49	Priority 2	Maintenance and improvement of evacuation facilities (H09)	Priority 2	Maintenance and improvement of evacuation facilities (H09)
50	Priority 2	Training on simple household water treatment techniques (H10)	Priority 2	Training on simple household water treatment techniques (H10)
51	Priority 2	Promoting sustainable water resource management (H10)	Priority 1	Promoting sustainable water resource management (H10)
52	Priority 2	Development of on-site domestic wastewater management systems (SPALD-S) (H10)	Priority 2	Development of on-site domestic wastewater management systems (SPALD-S) (H10)
53	Priority 2	Education on juvenile delinquency prevention (S03)	Priority 2	Education on juvenile delinquency prevention (S03)
54	Priority 2	Parent training and counselling on adolescent education (S03)	Priority 2	Parent training and counselling on adolescent education (S03)
55	Priority 2	Development of collaborative recommendations between city, regency, and provincial governments for tidal flood management through cross-regional flood mitigation strategies (S07)	Priority 1	Development of collaborative recommendations between city, regency, and provincial governments for tidal flood management through cross-regional flood mitigation strategies (S07)

No	Proposed Priority	Proposed Intervention	Priority after Pre-Feasibility Alignment	Interventions after Pre-Feasibility Alignment
56	Priority 2	Developing a flood risk management model using a penta-helix or cross-sectoral approach, emphasizing the integration of various sectors within the strategic alliance of Mercy Corps Indonesia – such as disaster risk reduction, climate change, development, economy, and community empowerment (S07)	Priority 1	Developing a flood risk management model using a penta-helix or cross-sectoral approach, emphasizing the integration of various sectors within the strategic alliance of Mercy Corps Indonesia – such as disaster risk reduction, climate change, development, economy, and community empowerment (S07)
57	Priority 2	Routine maintenance of clean water piping networks (P10)	Priority 2	Routine maintenance of clean water piping networks (P10)
58	Priority 2	Enforcement of the groundwater moratorium policy, including within the PAMSIMAS program (P10)	Priority 1	Enforcement of the groundwater moratorium policy, including within the PAMSIMAS program (P10)
59	Priority 2	Promoting revegetation with native plant species based on land availability and suitability (N01)	Priority 2	Promoting revegetation with native plant species based on land availability and suitability (N01)
60	Priority 2	Optimizing disaster relief mechanisms and aid distribution systems (F10)	Priority 1	Optimizing disaster relief mechanisms and aid distribution systems (F10)
61	Priority 2	Utilizing funding sources from non-government actors to strengthen affected livelihoods (F10)	Priority 1	Utilizing funding sources from non-government actors to strengthen affected livelihoods (F10)
62	Priority 3	Routine maintenance of the Loji-Banger flood control infrastructure system (P12)	Priority 3	Routine maintenance of the Loji-Banger flood control infrastructure system (P12)
63	Priority 3	Establishment of a volunteer-based embankment monitoring organization (P12)	Priority 3	Establishment of a volunteer-based embankment monitoring organization (P12)

No	Proposed Priority	Proposed Intervention	Priority after Pre-Feasibility Alignment	Interventions after Pre-Feasibility Alignment
64	Priority 3	Participatory monitoring and regular reporting of embankment conditions (P12)	Priority 3	Participatory monitoring and regular reporting of embankment conditions (P12)
65	Priority 3	Development of a communication mechanism and information platform for embankment condition updates (P12)	Priority 3	Development of a communication mechanism and information platform for embankment condition updates (P12)
66	Priority 3	Seeking alternative funding sources to support household-level community adaptation actions (P09)	Priority 3	Seeking alternative funding sources to support household-level community adaptation actions (P09)
67	Priority 3	Coastal rehabilitation and sustainable coastal land use management (N02)	Priority 1	Strengthening Coastal Land Management Planning, Including Coastal Rehabilitation and Sustainable Coastal Land Use Management (N02)
68	Priority 3	Optimization of drainage maintenance to increase water storage capacity (N02)	Priority 1	Optimization of drainage maintenance to increase water storage capacity (N02)
69	Priority 3	Development of funding mechanisms from non-government sources for disaster risk reduction activities (F08)	Priority 3	Development of funding mechanisms from non-government sources for disaster risk reduction activities (F08)
70	Priority 3	Facilitating Pekalongan City stakeholders to access alternative funding sources for disaster risk reduction-related activities (F08)	Priority 3	Facilitating Pekalongan City stakeholders to access alternative funding sources for disaster risk reduction-related activities (F08)
71	Priority 3	Encouraging the relocation of Preschool (PAUD) Clumpit (P05)	Priority 3	Encouraging the relocation of Preschool (PAUD) Clumpit (P05)
72	Priority 3	Strengthening SOPs for the implementation and evaluation of home-based education (P05)	Priority 3	Strengthening SOPs for the implementation and evaluation of home-based education (P05)

Source: IKUPU Analysis (2025)

Colour Coding Description:

 Relevant, important, and aligned with ToC, Logframe, and ZCRA strategy

-  Relevant, Important, but not aligned with ToC, Logframe and ZCRA strategy
-  Not relevant to ZCRA, but important for the area (community/subdistrict level), potential followed up by other actors
-  Not relevant to ZCRA and community context

5.1 Priority 1

Here are the first priority of Degayu community interventions.

Table V.2 Priority 1 of Degayu community Intervention

No	Interventions	Resilience Sources	Program Executors
1	Engaging community participation in the maintenance of the Loji-Banger Flood Control System, such as through the establishment of a working group (Pokja) (H05)	Awareness of climate change risk	Other actors
2	Conducting participatory flood risk mapping activities (H05)	Awareness of climate change risk	Other actors
3	Development of adaptive and conservation-based aquaculture practices (H05)	Awareness of climate change risk	Mercy Corps Indonesia
4	Collaboration with startups or tech companies for the development of IoT-based early warning systems (S13)	Stakeholder engagement in risk management	Other actors
5	Mainstreaming flood mitigation components into Environmental Impact Assessments (AMDAL) in flood-prone areas (S13)	Stakeholder engagement in risk management	Other actors
6	KSB, NGOs, and the subdistrict officials encourage community initiatives for greening and land restoration after the construction of the embankment (S13)	Stakeholder engagement in risk management	Other actors
7	Develop collaboration between the city, district, and provincial governments as well as other actors (S13)	Stakeholder engagement in risk management	Other actors
8	Development of conservation-based ecotourism around the embankment (F02)	Community financial health	Other actors
9	Encouraging companies to allocate CSR funds for business mentoring, capital support, and market access for MSMEs in Degayu (F02)	Community financial health	Other actors
10	Implementing adaptive aquaculture models in Degayu following the construction of the sea wall (F02)	Community financial health	Mercy Corps Indonesia
11	Building collaboration with potential markets/off-takers, financial service institutions, digital tool providers, technical experts that can finance business entities and offer technical consultation and market expansion services, particularly in the aquaculture sector and other flagship programs (F06)	Business continuity	Mercy Corps Indonesia

No	Interventions	Resilience Sources	Program Executors
12	Establishment of community financial cooperatives or savings groups (F06)	Business continuity	Other actors
13	Facilitation of incentives for businesses implementing waste management (F06)	Business continuity	Other actors
14	Encouraging alternative livelihoods for the coastal community of Degayu whose livelihoods are disrupted due to environmental disruptions (F07)	Household income continuity	Mercy Corps Indonesia
15	Collaborating with BLK (Vocational Training Center) for creative economy training programs for Degayu community (F07)	Household income continuity	Other actors
16	Utilizing dried-out land for agriculture or livestock farming (F07)	Household income continuity	Other actors
17	Encouraging the community to plant productive crops that are tolerant to high salinity conditions (N04)	Resource Management	Other actors
18	Developing adaptive and conservation-based aquaculture practices by promoting the strengthening of subdistrict-level policies that support sustainable coastal area management (N04)	Resource Management	Mercy Corps Indonesia
19	Controlling land-use changes around the sea wall (e.g., the emergence of new settlements in newly dried areas) (N04)	Resource Management	Other actors
20	Facilitating stakeholders in the City of Pekalongan to access alternative funding sources for climate resilience-related activities (F04)	Public infrastructure maintenance budget	Other actors
21	Regularly collecting data on vulnerable groups, especially persons with disabilities, including types of disabilities (S02)	Social inclusiveness of disaster risk management	Other actors
22	Conduct disaster preparedness training and education tailored to the needs of vulnerable groups (S02)	Social inclusiveness of disaster risk management	Other actors
23	Actively involving vulnerable groups in participatory activities to enhance climate resilience at the subdistrict level (S02)	Social inclusiveness of disaster risk management	Mercy Corps Indonesia
24	Provide education on climate-adaptive aquaculture (H04)	Awareness of need for climate change action	Mercy Corps Indonesia
25	Encourage the effective use of CSR or other donor funds to improve sustainable and environmentally friendly flood infrastructure financing (F03)	Local government financial capacity	Other actors
26	Assist in the preparation of climate resilience development programs (F03)	Local government financial capacity	Other actors
27	Improving capacity through training in business management, financial management, access to financing, and strengthening financial institutions (F01)	Household access to discretionary funds	Mercy Corps Indonesia

No	Interventions	Resilience Sources	Program Executors
28	Training for KSB and subdistrict officials on distributing information to the community, including through door-to-door communication, loudspeakers, and WhatsApp groups (P04)	Early warning	Other actors
29	Integrating GEDSI perspectives into the development of climate information systems for conservation-based agriculture and aquaculture through participatory processes (P04)	Early warning	Mercy Corps Indonesia
30	Awareness campaigns on the use of climate information systems at the community level, especially for fisherfolk and aquaculture groups (P04)	Early warning	Mercy Corps Indonesia
31	Promoting sustainable water resource management (H10)	Unsafe water awareness	Mercy Corps Indonesia
32	Development of collaborative recommendations between city, regency, and provincial governments for tidal flood management through cross-regional flood mitigation strategies (S07)	Trust in local authorities	Mercy Corps Indonesia
33	Developing a flood risk management model using a penta-helix or cross-sectoral approach, emphasizing the integration of various sectors within the strategic alliance of Mercy Corps Indonesia—such as disaster risk reduction, climate change, development, economy, and community empowerment (S07)	Trust in local authorities	Mercy Corps Indonesia
34	Enforcement of the groundwater moratorium policy, including within the PAMSIMAS program (P10)	Availability of clean, safe water	Other actors
35	Optimizing disaster relief mechanisms and aid distribution systems (F10)	Disaster recovery budget	Other actors
36	Utilizing funding sources from non-government actors to strengthen affected livelihoods (F10)	Disaster recovery budget	Mercy Corps Indonesia
37	Strengthening Coastal Land Management Planning, Including Coastal Rehabilitation and Sustainable Coastal Land Use Management (N02)	Permeable surfaces	Mercy Corps Indonesia
38	Optimization of drainage maintenance to increase water storage capacity (N02)	Permeable surfaces	Other actors

Source: Pre-Feasibility Study Result (2025)

5.2 Priority 2

Here are the second priority of Degayu community interventions.

Table V.3 Priority 2 of Degayu Community Intervention

No	Interventions	Resilience Sources	Program Executors
1	Allocate community self-help funds for social and environmental programs (S04)	Local leadership	Other actors
2	Raise awareness on proper waste disposal behaviour (H04)	Awareness of need for climate change action	Other actors
3	Educate and provide organic fertilizers to farmers (H04)	Awareness of need for climate change action	Other actors
4	Strengthen savings and loan institutions at the subdistrict level (F01)	Household access to discretionary funds	Other actors
5	Training on collective composting of household waste (P11)	Waste management and risk	Other actors
6	Reactivation of community clean-up activities and coastal area cleaning (P11)	Waste management and risk	Other actors
7	Multi-stakeholder involvement in the waste management activity chain (P11)	Waste management and risk	Other actors
8	Revitalization and optimization of TPS3R & TPST using environmentally friendly technologies (P11)	Waste management and risk	Other actors
9	Utilization of home yards for hydroponic vegetable farming (H02)	Food availability	Other actors
10	Development of collective food gardens (H02)	Food availability	Other actors
11	Socialization of zero waste food programs (H02)	Food availability	Other actors
12	Regular dissemination of information in the form of videos or posters regarding the importance of evacuation, evacuation mechanisms, visualization of shelters and their facilities through WhatsApp Groups (H09)	Evacuation and safety knowledge	Other actors
13	Maintenance and improvement of evacuation facilities (H09)	Evacuation and safety knowledge	Other actors
14	Training on simple household water treatment techniques (H10)	Unsafe water awareness	Other actors
15	Development of on-site domestic wastewater management systems (SPALD-S) (H10)	Unsafe water awareness	Other actors
16	Education on juvenile delinquency prevention (S03)	Community safety	Other actors
17	Parent training and counselling on adolescent education (S03)	Community safety	Other actors
18	Routine maintenance of clean water piping networks (P10)	Availability of clean, safe water	Other actors
19	Promoting revegetation with native plant species based on land availability and suitability (N01)	Tree cover	Other actors

Source: Pre-Feasibility Study Result (2025)

5.3 Priority 3

Here are the third priority of Degayu community interventions.

Table V.4 Priority 3 of Degayu Community Interventions

No	Interventions	Resilience Sources	Program Executors
1	Routine maintenance of the Loji-Banger flood control infrastructure system (P12)	Large scale flood protection	Other actors
2	Establishment of a volunteer-based embankment monitoring organization (P12)	Large scale flood protection	Other actors
3	Participatory monitoring and regular reporting of embankment conditions (P12)	Large scale flood protection	Other actors
4	Development of a communication mechanism and information platform for embankment condition updates (P12)	Large scale flood protection	Other actors
5	Seeking alternative funding sources to support household-level community adaptation actions (P09)	Household protection and adaptation	Other actors
6	Development of funding mechanisms from non-government sources for disaster risk reduction activities (F08)	Risk reduction investments	Other actors
7	Facilitating Pekalongan City stakeholders to access alternative funding sources for disaster risk reduction-related activities (F08)	Risk reduction investments	Other actors
8	Encouraging the relocation of Preschool (PAUD) Clumprit (P05)	Continuity of education	Other actors
9	Strengthening SOPs for the implementation and evaluation of home-based education (P05)	Continuity of education	Other actors

Source: Pre-Feasibility Study Result (2025)

Appendix 1: A Comprehensive Commentary to CRMC Tools

Climate Resilience Measurement for Communities: A Commentary

Rukuh Setiadi¹, Rayhan Chansa Chaidir¹

¹Inisiatif Kota untuk Perubahan Iklim (IKUPI)

*Penulis utama/kontak: rukuh.setiadi@pwk.undip.ac.id

This brief note aims to highlight some of the potentials and weaknesses of implementing the Climate Resilience Measurement Tool for Communities (CRMC). This brief note refers to the implementation of CRMC in Pekalongan, Central Java, Indonesia.

The Climate Resilience Measurement Tool for Communities has proven effective in guiding climate hazard resilience analysis. This tool is useful for organizing analysis output and producing a resilience score for each community, which can be viewed through seven lenses, namely five capitals, community context, disaster risk management cycle, 4 resilience (4R), 7 themes, city resilience index, and specific GAID. CRMC results are also visualized per lens and can be compared with other communities, this information is useful for the community for decision making.

Our team found the five-modal lens score the most useful of these tools. Information from this lens helps analysts to have a holistic view of sectors that require immediate attention. In addition, the description of sources of resilience can provide general clarification regarding the selection of interventions. Interventions are not limited to weaknesses alone, but opportunities that can be improved as well. This means that not only D grades or most of the C grades, but also B grades have the potential to be prioritized in intervention. Apart from the five capital lens, the 4R lens and the disaster risk management cycle need to be shared with the community because they provide information that reflects the current condition of community resilience and in particular the disaster risk management cycle can provide an idea of which cycle or stage this community has weaknesses or strengths. . This can be a trigger for society to take collective action. Despite some of its advantages, we also found some inherent disadvantages of this tool. The following are the shortcomings we encountered:

- Overview for CRMC Tools

1. The list of questions is disordered.

Explanation: The household survey questions, key informant interviews, and FGDs are not in sequence so that respondents feel they have answered the same questions before but it turns out these are similar questions but the questions are far apart. This is because the system in the application displays a list of questions per general hazard and then to specific floods, starting from *Household questions, Assets (Generic), Governance (Generic), Life and Health (Generic), Lifelines (Generic), Natural Environment (Generic), Social Norms (Generic), Assets (Flood), Life and Health (Flood), Lifelines (Flood), Livelihoods (Flood), dan Natural Environment (Flood)*.

Suggestion: It would be better to group the list of questions by category, for example Assets (Generic) and Assets (Flood) are grouped together or close together because the questions that appear will be similar.

Expected condition	Before completing the data collection method stage, there is information regarding the number of questions that will be generated using each method.
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3. The list of Key Informant Interview and FGD questions does not provide space for obtaining in-depth information.

Explanation: This tool provides questions in the form of closed questions so that it does not allow respondents to explore the answers. The "Additional Comments" box helps to provide additional information but not when, with closed questions, the enumerator only sticks to the answer chosen by the respondent without asking the reasons behind choosing that answer.

Suggestion: There are no suggestions for applications. Enumerators need to be reminded to explore the answers chosen by respondents before going into the field to ensure all the required information is captured.

4. Difficulties in understanding the language used.

Explanation: The use of translated sentences is difficult to understand. This not only makes things difficult for the team, but also for respondents or sources. The team was also unsure about changing sentences when the translation process became easier to understand for fear of changing the context of the question. As a result, enumerators and even resource persons experienced misunderstandings in interpreting a question. Apart from that, there are questions whose context is not appropriate to community conditions. An example is "How many households in the community have income or wealth above the national median income?". Indonesia itself does not use national median income data.

Suggestion:

No	Translated questions	Suggested improvement
Household Surveys		
1	Is anyone in this household: deaf or have serious difficulty hearing ; blind or have serious difficulty seeing even when wearing glasses ; cognitively impaired or have serious difficulty concentrating, remembering, or making decisions ; disabled or have serious difficulty walking or climbing stairs ?	Is anyone in this household: deaf, blind, cognitively impaired, or physically disabled?
2	Local leaders in this community act in the best interests of the whole community rather than only some groups	Village/subdistrict
3	The local government in this community is trustworthy.	Village/subdistrict
4	This community is financially supported by government to the same extent as in other neighboring communities.	Contextual according to community scale. In this case the surrounding neighbourhood.
5	Children in this community have equal educational opportunities with children in other neighboring communities.	Contextual according to community scale. In this case the surrounding neighbourhood.

No	Translated questions	Suggested improvement
6	People in this community have equal employment opportunities with people in other neighboring communities .	Contextual according to community scale. In this case the surrounding neighbourhood.
Focus Group Discussion		
7	The flood risk reduction plan includes both prospective and corrective risk reduction .	There is a brief explanation regarding the definition of Prospective Risk Reduction and corrective questions.
8	Are the community and its communal assets protected through a combination of structural and non-structural flood protection measures?	There is a brief explanation regarding of structural and non-structural flood protection in the question.
9	Are flood forecasts generated for this area ?	Clarify that this area is at the district/city or village/sub-district level.
Key Informant Interviews		
10	Has a flood risk map been developed for this community in the last five years?	Village level (if the community is village/neighbourhood scale)/
11	Is there a system in place for collecting data on direct and indirect flood impacts in this community ?	Village level (if the community is village/neighbourhood scale)/
12	Do flood risk reduction investments equitably benefit all residents, both within this community and as compared with other communities ?	Village level (if the community is village/neighbourhood scale)/

5. List of questions are not translated after downloading.

Explanation: once all the data is collected, the data can be downloaded for analysis. Specific to "Method ID 12432", all translated questions in Bahasa Indonesia that have been inputted during setting up study stage remain in English.

Suggestion: save automatically the translation inputted on each questions, not only at the end of the input process.

- Overview CRMC tool for grading process

No	Code	Resilience Sources	Commentary	Explanation
1	P05	Continuity of education	The answer choices are very rigid, complicated, and not suitable for the community	Answer choice (in Jeruksari and Krapyak Community): C. Education is significantly impacted. School buildings are impacted by floods and can continue some but not all services OR (Only some children in the community will be able to reach their school safely)

No	Code	Resilience Sources	Commentary	Explanation
				AND Interruption to schooling for students who can't reach school safely will last longer than a week). Actual condition: Learning process affects significantly depends on the severity of the flood events.
2	N05	Land/water interface health	Options do not reflect the study area condition.	Answer choice (in Jeruksari and Krapyak Community): C. River and stream banks are not protected from adjacent development or cultivation. Small streams may be diverted or channelized into concrete drains OR Natural wetlands are rarely preserved or valued OR Coastal sites are relatively unprotected. Actual condition: The river is protected by a concrete embankment.
3	P09	Household protection and adaptation	There is no "not done yet" option. Answer choices force respondents and the grading team to answer the available measurements offered.	Answer choice (in Jeruksari and Krapyak Community): A. More than 80% of households have taken at least some type of protective measure to address flood risk. Actual condition: There are people who do not take action to overcome the risk of flooding.
4	P10	Availability of clean, safe water	Vulnerable groups are not asked about during the household surveys but those appear as an option during grading.	Answer choice (in Krapyak Community): C. The clean water supply is damaged and only partially operational (e.g. water needs to be treated for an extended time or other water sources are required) OR Sanitation systems are damaged and only partially operational OR

No	Code	Resilience Sources	Commentary	Explanation
				Flooding impacts the water supply or sanitation system for many community members. Actual condition: Options A and B related to vulnerable groups so when grading we chose C which is most representing the condition in Krapyak.
5	P11	Waste management and risk	The grading options do not match the data collected.	Answer choice (in Krapyak Community): B. Waste causes or intensifies some flood problems (e.g. by clogging drains). Actual condition: Household survey result 32% respondents chose "waste causes or intensifies some flood problems", 27% respondents chose "waste causes significant flood problems" 30% "waste causes major flood problems". Grading team found it difficult to choose the grade cause of almost equal answers.

We acknowledge the strength of this CRMC tool in the household questionnaire section. Other types of data collection such as key informants and focus groups are designed to complement household data. Unfortunately, this type of data is only converted from household type questionnaires. We found a number of open-ended questions for key informant interviews that required specific, closed-ended answers. Overall, CRMC is effective in assisting researchers in communicating resilience to policymakers and the public. There are only minor discrepancies or errors. We recommend simplifying the choice of questions both at the data collection stage and during the assessment.

Appendix 2: Translation of Household Surveys Questions in Bahasa Indonesia

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
1	(Generic) : Context	Di antara kelompok usia berikut, Anda termasuk yang mana: 18-30, 31-65, atau lebih dari 65 tahun?	18-30 tahun / 31-65 tahun / Lebih dari 65 tahun
2		Apa jenis kelamin Anda?	Perempuan / Laki-laki / Lainnya
3		Apakah ini rumah tangga yang dikepalai perempuan?	Ya / Tidak / Lebih baik tidak mengatakan
4		Berapa lama anggota rumah tangga tersebut tinggal di komunitas ini?	Setidaknya satu anggota rumah tangga dewasa memiliki riwayat keluarga yang panjang di sini (yaitu beberapa generasi telah tinggal di komunitas tersebut) / Setidaknya satu anggota rumah tangga dewasa lahir di komunitas tersebut / Anggota rumah tangga pindah ke sini lebih dari 20 tahun yang lalu / Anggota rumah tangga pindah ke sini antara 5 dan 20 tahun yang lalu / Anggota rumah tangga pindah ke sini kurang dari 5 tahun yang lalu / Saya tidak tahu
5		Apa tingkat pendidikan tertinggi yang pernah Anda selesaikan?	Tidak pernah bersekolah / Pernah bersekolah di sekolah dasar, namun tidak tamat / Selesai sekolah dasar / Menghadiri pendidikan menengah, tetapi tidak menyelesaikannya / Menyelesaikan pendidikan menengah / Perguruan tinggi atau pelatihan / Sertifikat atau gelar kejuruan / Gelar universitas
6		Apakah ada orang di rumah ini yang: tuli atau mengalami kesulitan mendengar yang serius; buta atau mengalami kesulitan melihat meskipun memakai kacamata; gangguan kognitif atau mengalami kesulitan serius dalam berkonsentrasi, mengingat, atau	Ya untuk satu atau lebih / Tidak untuk semua / Saya tidak tahu / Lebih baik tidak mengatakan

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
		mengambil keputusan; cacat atau mengalami kesulitan serius dalam berjalan atau menaiki tangga?	
7		Apakah ada orang dalam rumah tangga ini yang mengidentifikasi diri sebagai anggota dari satu atau lebih kelompok minoritas atau terpinggirkan, seperti minoritas etnis, agama, ras, LGBTQI+?	Ya / Tidak / Saya tidak tahu / Lebih baik tidak mengatakan
8		Silakan sebutkan kelompok minoritas atau terpinggirkan manakah yang berlaku untuk orang di dalam rumah tangga ini? Silakan centang semua opsi yang berlaku	Etnis / Keagamaan / Rasial / LGBTQI+ / Lainnya / Tidak ada / Lebih baik tidak mengatakan
9		Berapa pendapatan tahunan rata-rata rumah tangga tersebut?	
10		Apa sumber pendapatan terbesar rumah tangga ini?	Upah untuk pekerjaan yang sebagian besar dilakukan di luar ruangan (buruh tani, konstruksi, pertamanan, dll.) / Upah untuk pekerjaan semi-indoor (supir, buruh pabrik, buruh gudang) / Upah untuk pekerjaan yang sebagian besar di dalam ruangan (desk-job, pemerintahan, dll.) / Kiriman uang / Pembayaran kesejahteraan sosial dari pemerintah / Dukungan dari keluarga, gereja, atau LSM / Pendapatan dari aset seperti properti (sewa) atau investasi lainnya / Pensiun / Sumber pendapatan lainnya / Tidak ada sumber pendapatan / Saya tidak tahu
11		Berapa banyak orang yang tinggal di rumah ini pada sebagian besar waktunya?	
12		Bisakah semua orang di rumah yang berusia di atas 12 tahun membaca dan menulis?	Ya, semua orang bisa membaca dan menulis / Sebagian besar anggota rumah tangga dapat membaca dan menulis / Setidaknya satu orang di rumah bisa membaca dan menulis /

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
			Setidaknya satu orang di rumah bisa membaca / Tidak seorang pun di rumah bisa membaca atau menulis / Lainnya / Lebih baik tidak mengatakan
13		Apakah anggota rumah tangga ini fasih dalam bahasa utama yang digunakan oleh pemerintah daerah?	Ya, semua orang fasih / Sebagian besar anggota rumah tangga fasih / Sebagian besar anggota rumah tangga cukup menguasai bahasa utama untuk berkomunikasi / Beberapa atau hanya satu anggota rumah tangga cukup menguasai bahasa utama untuk berkomunikasi / Tak seorang pun di rumah tangga ini cukup menguasai bahasa utama yang digunakan pemerintah setempat untuk berkomunikasi / Saya tidak tahu / Lebih baik tidak mengatakan
14		Siapa pemilik tempat tinggal ini?	Tempat tinggal dimiliki oleh seseorang yang tinggal di sini / Tempat tinggal disewa oleh seseorang yang tinggal di sini / Orang-orang yang tinggal di sini hidup bebas sewa dengan izin dari pemiliknya / Orang-orang yang tinggal di sini menghuni tempat tinggal ini tanpa izin dari pemiliknya / Lainnya / Saya tidak tahu
15		Selama Anda tinggal di sini, dalam 10 tahun terakhir berapa kali anggota rumah tangga mengalami kerusakan harta benda akibat banjir?	
16	(Flood): Context	Bayangkan banjir terparah yang pernah Anda alami selama tinggal di sini selama 10 tahun terakhir, berapa lama waktu yang Anda perlukan untuk pulih secara finansial (misalnya akibat perbaikan gedung atau hilangnya pendapatan)?	Saya belum pernah terkena dampak banjir di komunitas ini / Kurang dari satu bulan / Kurang dari tiga bulan / Kurang dari satu tahun / Lebih dari satu tahun / Saya tidak tahu

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
17	(Generic): Assets	Jika Anda tiba-tiba mengalami kebutuhan keuangan, apakah Anda memiliki tabungan yang cukup untuk menutupi pengeluaran selama seminggu?	Ya / Tidak / Saya tidak tahu
18	(Generic): Governance	Pemimpin daerah di komunitas ini bertindak demi kepentingan terbaik seluruh komunitas dan bukan hanya kepentingan kelompok tertentu. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan ini?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
19	(Generic): Life and Health	Dalam 4 minggu terakhir, pernahkah Anda atau seseorang di rumah Anda tidur dalam keadaan lapar karena tidak memiliki cukup makanan untuk dimakan?	Ya / Tidak / Saya tidak tahu
20		Apakah ada orang dewasa di rumah tangga ini yang menerima pelatihan pertolongan pertama dalam 5 tahun terakhir?	Ya / Tidak / Saya tidak tahu
21		Saya khawatir menjadi korban kejahatan di daerah saya. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
22	(Generic): Lifelines	Sistem komunikasi apa yang dapat Anda akses? Silakan centang semua opsi yang berlaku.	Telepon seluler / Telepon rumah/kantor (non-seluler) / Internet / Televisi / Radio / Tetangga ke Tetangga / Radio 2 arah / Lainnya / Tidak ada sistem komunikasi
23		Apakah sistem komunikasi tersebut dapat diandalkan, termasuk selama dan setelah kejadian ekstrem?	Ya, sistem komunikasi sangat andal / Sistem komunikasi secara umum tetap berfungsi atau pulih dengan cepat / Sistem komunikasi hanya cukup dapat diandalkan / Sistem komunikasi

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
			sangat tidak dapat diandalkan / Tidak ada sistem komunikasi yang berfungsi / Saya tidak tahu
24	(Generic): Natural Environment	Komunitas saya harus mengambil tindakan lebih besar untuk mengurangi risiko perubahan iklim. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
25	(Generic): Social Norms	Orang-orang dalam komunitas ini umumnya berusaha untuk saling membantu dan dapat mengandalkan satu sama lain untuk membantu mereka pada saat dibutuhkan. Misalnya, jika Anda terserang flu dan harus terbaring di tempat tidur selama beberapa hari, akan ada orang yang dapat Anda andalkan untuk membantu Anda melakukan tugas-tugas dasar rumah tangga dan mendapatkan makanan. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
26		Polisi di komunitas ini dapat dipercaya. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
27		Pemerintah daerah di komunitas ini dapat dipercaya.	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
		Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	
28		Layanan darurat di komunitas ini dapat dipercaya. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
29		Orang-orang yang bekerja di komunitas ini dibayar secara adil. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
30		Semua anak di komunitas ini mempunyai kesempatan pendidikan yang sama. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
31		Semua orang diperlakukan secara adil ketika melamar pekerjaan di komunitas ini. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
32		Komunitas ini mendapat dukungan finansial yang sama dari pemerintah seperti komunitas tetangga lainnya.	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
		Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	
33		Anak-anak di komunitas ini mempunyai kesempatan pendidikan yang sama dengan anak-anak di komunitas tetangga lainnya. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
34		Orang-orang di komunitas ini mempunyai kesempatan kerja yang setara dengan orang-orang di komunitas tetangga lainnya. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
35		Saya tahu daerah mana di komunitas yang kemungkinan besar akan terkena banjir. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
36	(Flood): Assets	Tindakan apa yang telah Anda ambil di sekitar rumah Anda untuk menjaga properti dan aset Anda aman dari air banjir? Silakan centang semua opsi yang berlaku.	Penghalang banjir atau karung pasir / Dinding di sekitar rumah / Rumah yang ditinggikan / Lantai yang ditinggikan di dalam rumah / Alas/pintu yang ditinggikan / Mengalihkan air banjir di sekitar rumah (misalnya saluran pengalihan, tanggul atau sejenisnya) / Menggunakan lantai atas untuk penyimpanan / Bangunan tahan

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
			banjir / Penyimpanan/harta benda anti banjir / Dibangun atau ditingkatkan ke kode bangunan terbaru / Melindungi, membuat tahan air atau memindahkan sistem penting seperti sistem kabel atau mekanis
37		Apakah rumah Anda berada di dataran banjir atau pernah mengalami banjir sebelumnya?	Ya / Tidak / Saya tidak tahu
38		Apakah Anda memiliki asuransi banjir?	Ya / Tidak / Saya tidak tahu
39	(Flood): Life and Health	Saya tahu kapan harus mengevakuasi diri saya dan anggota rumah tangga saya dengan aman saat banjir. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
40		Saya tahu cara mengevakuasi diri saya dan anggota rumah tangga saya dengan aman saat terjadi banjir. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
41		Saya tahu tindakan yang benar yang harus diambil untuk melindungi diri saya dan rumah tangga saya dari air yang tidak aman setelah banjir. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
42		Jika Anda membutuhkan layanan kesehatan saat terjadi banjir, dapatkah Anda mengaksesnya dengan aman?	Ya / Tidak / Saya tidak tahu

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
43	(Flood): Lifelines	Apakah ada peringatan dini banjir yang disebarluaskan oleh pemerintah, dinas terkait cuaca, atau sumber terpercaya lainnya?	Ya / Tidak / Peringatan dini banjir tidak tersedia di komunitas ini / Saya tidak tahu
44		Jika Anda menerima peringatan dini banjir, apakah Anda dapat menggunakan peringatan tersebut untuk mengambil tindakan perlindungan atau pencegahan? Silakan centang semua opsi yang berlaku.	Ya / Agak / Tidak, peringatan datang terlambat untuk membuatnya berguna / Tidak, peringatan tidak tersedia dalam bahasa saya / Tidak, peringatan membingungkan dan Saya tidak tahu apa yang harus saya lakukan ketika menerimanya / Saya tidak berharap menerima peringatan / Lainnya / Saya tidak tahu
45		Apakah pasokan air bersih Anda terdampak banjir?	Pasokan air tetap berfungsi dan air dapat digunakan dengan aman tanpa pengolahan / Pasokan air sedikit rusak atau terganggu, namun tetap berfungsi atau cepat pulih / Pasokan air rusak sedang atau hanya beroperasi sebagian / Tidak ada pasokan air bersih / Pasokan air mati total / Lainnya / Saya tidak tahu
46		Apakah sistem sanitasi Anda terkena dampak banjir?	Sistem sanitasi tidak rusak dan dapat terus digunakan / Sistem sanitasi terkena dampaknya, namun tetap dapat digunakan / Sistem sanitasi rusak dan hanya dapat digunakan sebagian / Sistem sanitasi gagal/rusak total / Tidak ada sistem sanitasi / Lainnya / Saya tidak tahu
47		Apakah sampah memperburuk banjir?	Tidak, sampah tidak menyebabkan atau memperparah masalah banjir / Ya, sampah menyebabkan atau memperburuk beberapa masalah banjir / Ya, sampah menyebabkan

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
			masalah banjir yang signifikan / Ya, sampah menyebabkan masalah banjir besar
48	(Flood): Livelihoods	Perubahan iklim meningkatkan risiko banjir dan akan terus berlanjut di masa depan. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju
49		Bagaimana dampak banjir terhadap sekolah-sekolah di komunitas ini?	Sekolah tidak banjir / Sekolah terkena banjir dalam skala kecil sehingga tidak berdampak signifikan terhadap sekolah / Sekolah terkena dampak sedang dan dapat melanjutkan beberapa layanan, namun tidak semua layanan / Sekolah terkena banjir secara signifikan / Sekolah tidak terkena banjir, namun digunakan sebagai tempat perlindungan banjir atau sejenisnya yang mengganggu kegiatan sekolah / Tidak ada sekolah untuk komunitas kami / Saya tidak tahu
50		Jika banjir, apakah anak-anak Anda dapat sampai ke sekolah dengan aman?	Kami bisa sampai di sekolah dengan aman / Kami mungkin mengalami masalah dalam mencapai sekolah / Kami tidak akan bisa sampai ke sekolah / Kami tidak memiliki akses ke sekolah meskipun tidak terjadi banjir / Saya tidak punya anak usia sekolah / Saya tidak tahu
51		Jika sekolah rusak, tidak dapat diakses, digunakan sebagai tempat berlindung/mengungsi, atau tidak tersedia, apa yang akan terjadi pada kegiatan sekolah bagi anak-anak di rumah tangga ini?	Sekolah tidak terkena dampaknya / Ada rencana alternatif yang memungkinkan guru dan anak sekolah bertemu di tempat sementara yang aman / Gangguan apa pun akan berlangsung

No	Tema	Pertanyaan yang didiskusikan	Pilihan Jawaban
			kurang dari seminggu dan tidak akan berdampak signifikan pada kegiatan sekolah / Gangguan akan berlangsung lebih dari seminggu dan akan berdampak signifikan pada kegiatan sekolah / Tidak ada rencana alternatif untuk melanjutkan kegiatan sekolah / Tidak ada sekolah yang tersedia untuk komunitas ini / Saya tidak tahu
52		Jika terjadi banjir, apakah Anda dapat tetap bekerja dan/atau mempertahankan penghasilan?	Ya, pekerjaan atau penghasilan saya tidak terganggu ketika terjadi banjir / Ya, saya mempunyai sumber penghasilan alternatif atau pekerjaan alternatif yang bisa saya lakukan saat banjir / Tidak, pekerjaan dan penghasilan saya terganggu sampai banjir berakhir / Tidak, pekerjaan dan penghasilan saya akan terganggu tanpa batas waktu / Lainnya / Saya tidak tahu
53	(Flood): Narutal Environment	Lingkungan alam yang sehat mengurangi risiko banjir. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju

Appendix 3: Translation of Key Informant Interview Question in Bahasa Indonesia

No	Tema	Pertanyaan yang didiskusikan	Key Informant (Stakeholders)	Pilihan Jawaban
1	(Generic): Context	Di antara kelompok usia berikut, manakah yang sesuai untuk Anda: 12-17, 18-30, 31-65, atau lebih dari 65 tahun?	• Community leader • Community council member • Community health worker • Local response services • Headteacher • Local business person • Women gender official • Development/planning official • DRR/CC official • Health official • Public works official	12-17 tahun / 18-30 tahun / 31-65 tahun / Lebih dari 65 tahun
2		Apa posisi atau peran Anda?		
3		Berapa tahun Anda mempunyai pengalaman dengan komunitas ini, baik dengan tinggal di sini atau bekerja dengan komunitas ini?		
4		Apa jenis kelamin Anda?		Perempuan / Laki-laki / Lainnya
5	(Generic): Assets	Berapa banyak rumah tangga di komunitas yang memiliki pendapatan atau kekayaan di atas garis kemiskinan nasional?	• Community council member	Hampir semuanya / Sebagian besar / Beberapa, sedikit atau tidak ada sama sekali / Saya tidak tahu
6		Berapa banyak rumah tangga di komunitas yang mempunyai pendapatan atau kekayaan di atas pendapatan median nasional?	• Community council member	Sebagian besar / Sekitar setengah / Sedikit atau tidak ada sama sekali / Saya tidak tahu
7	(Generic): Governance	Bisakah pemerintah daerah mengumpulkan uangnya sendiri?	• Community council member • Development/planning official	Ya, mereka memungut pajak daerah, mengenakan biaya untuk pemberian layanan, dan/atau dapat meminjam uang atau menerbitkan utang / Agak; mereka memiliki sejumlah pendanaan daerah selain pendanaan dari tingkat pemerintahan yang lebih tinggi /

				Tidak, mereka hanya memperoleh pendanaan dari tingkat pemerintahan yang lebih tinggi / Lainnya / Saya tidak tahu
8		Apakah pemerintah daerah mengelola keuangannya secara transparan dan akuntabel?	• Community council member • Development/planning official	Ya, keuangan pemerintah daerah dikelola secara transparan dan pengambil keputusan bertanggung jawab kepada komunitas / Agak; keuangan pemerintah daerah sebagian besar transparan dan pengambil keputusan sebagian besar akuntabel / Tidak, keuangan pemerintah daerah tidak transparan dan/atau pengambil keputusan tidak bertanggung jawab kepada komunitas / Lainnya / Saya tidak tahu
9		Siapa saja di komunitas yang terlibat dalam tanggap darurat (misalnya staf yang digaji, relawan)?	• DRR/CC official • Local response services	
10		Seberapa baik kebutuhan personel tanggap darurat bencana saat ini dipenuhi melalui pelatihan, sumber daya, dan dukungan lainnya?	• DRR/CC official • Local response services	Kebutuhan mereka terpenuhi dengan baik / Kebutuhan mereka sedikit banyak terpenuhi / Kebutuhan mereka tidak terpenuhi sama sekali
11		Manajer risiko secara aktif merencanakan bagaimana kebutuhan personel tanggap darurat bencana di	• DRR/CC official • Local response services	Sangat setuju / Setuju / Tidak punya pendapat / Tidak setuju / Sangat tidak setuju

		masa depan akan berubah akibat perubahan iklim. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?		
12	(Generic): Lifelines	Apakah pasokan bahan bakar tetap berkelanjutan selama kejadian ekstrem?	• Community council member • Community leader	Ya, komunitas telah sepenuhnya melindungi sumber pasokan bahan bakar / Akses terhadap bahan bakar sedikit terkena dampaknya, namun komunitas dapat melanjutkan kehidupan sehari-hari dengan gangguan yang terbatas / Akses bahan bakar sangat terkena dampaknya, sehingga menyebabkan gangguan selama beberapa hari / Tidak, pasokan bahan bakar tidak mencukupi dan/atau sangat tidak dapat diandalkan bahkan dalam kondisi normal / Lainnya / Saya tidak tahu
13		Apakah sistem pembangkit energi tetap beroperasi selama dan setelah kejadian ekstrem?	• Community council member • Community leader	Ya, sistem pembangkit energi tetap beroperasi / Sistem pembangkit energi sedikit terkena dampaknya, namun mampu tetap beroperasi dengan gangguan yang terbatas / Sistem pembangkit energi sangat terkena dampaknya, sehingga menyebabkan gangguan selama beberapa hari / Sistem pembangkit

				energi sangat tidak dapat diandalkan bahkan dalam kondisi normal / Lainnya / Saya tidak tahu
14		Apakah sistem energi siap menghadapi kejadian yang lebih ekstrem di masa depan?	• Community council member • Community leader	Ya / Mungkin / Tidak / Saya tidak tahu
15		Akankah komunitas tetap memiliki aksesibilitas, baik akses dan layanan darurat, maupun kelancaran fungsi pekerjaan, akses ke pasar, dan pemenuhan kebutuhan sehari-hari selama kejadian ekstrem?	• Community council member • Community leader • Public works official	Ya, semua wilayah komunitas tetap dapat diakses / Semua wilayah komunitas tetap dapat diakses untuk akses dan layanan darurat, namun di beberapa wilayah fungsi/kegiatan sehari-hari mungkin terganggu selama beberapa hari / Sebagian besar wilayah komunitas masih dapat diakses untuk akses dan layanan darurat, namun peralatan/kendaraan khusus mungkin diperlukan (perahu, kendaraan 4x4, dll.) / Jalur transportasi komunitas terkena dampak serius selama dan setelah bencana, yang mengakibatkan dampak serius terhadap kehidupan, kesehatan, atau ekonomi / Tidak ada sistem transportasi yang berfungsi / Saya tidak tahu
16		Dapatkah pengguna sistem transportasi umum menggunakan sistem transportasi	• Community council member • Community leader	Pengguna dapat menggunakan sistem transportasi umum dengan

		umum dengan aman dalam cuaca apa pun dan apakah sistem transportasi umum akan terus berjalan sesuai jadwal dan tidak membuat pengguna terlantar?	• Public works official	aman dalam cuaca apa pun / Pengguna dapat menggunakan sistem transportasi umum dengan aman di sebagian besar cuaca, namun saat terjadi peristiwa ekstrem akan terjadi gangguan dan/atau pengendara mungkin terkena cuaca berbahaya untuk sementara waktu. / Sistem transportasi umum menjadi sangat terganggu, sehingga membuat pengguna terpapar cuaca berbahaya dan/atau pengguna yang terdampar / Tidak ada sistem transportasi umum / Saya tidak tahu
17		Sistem komunikasi apa yang dapat diakses oleh anggota komunitas? Silakan centang semua opsi yang berlaku.	• Community council member • Community leader • DRR/CC official • Local response services	Telepon selular / Telepon rumah/kantor (non-seluler) / Internet / Televisi / Radio / Tetangga ke Tetangga / Radio 2 arah / Lainnya / Tidak ada sistem komunikasi / Saya tidak tahu
18		Apakah sistem komunikasi tersebut dapat diandalkan, termasuk selama dan setelah kejadian ekstrem?	• Community council member • Community leader • DRR/CC official • Local response services	Ya, sistem komunikasi sangat andal / Sistem komunikasi secara umum tetap berfungsi atau pulih dengan cepat / Sistem komunikasi hanya cukup dapat diandalkan / Sistem komunikasi sangat tidak dapat diandalkan / Tidak ada

				sistem komunikasi yang berfungsi / Saya tidak tahu
19		Apakah ada anggaran tahunan khusus untuk pemeliharaan infrastruktur publik?	• Community council member • Development/planning official	Ya / Tidak / Saya tidak tahu
20		Apakah anggaran cukup untuk memenuhi kebutuhan pemeliharaan?	• Community council member • Development/planning official	Ya, infrastruktur terpelihara dengan baik / Tidak, ada backlog pemeliharaan dan/atau kerusakan infrastruktur saat kejadian ekstrem / Saya tidak tahu
21		Apakah infrastruktur publik di komunitas ini dipelihara secara rutin dan dengan standar yang sama seperti infrastruktur di komunitas sekitar?	• Community council member • Development/planning official	Ya / Tidak / Saya tidak tahu
22	(Generic): Livelihoods	Berapa persentase anak perempuan di komunitas yang bersekolah secara rutin?	• Headteacher	
23		Berapa persentase anak laki-laki di komunitas yang bersekolah secara rutin?	• Headteacher	
24	(Generic): Life and Health	Berapa persentase orang dewasa di komunitas yang telah menerima pelatihan pertolongan pertama dalam 5 tahun terakhir?	• Health official • Local response services	
25	(Generic): Natural Environment	Apakah sungai dan tepi sungai secara proaktif dilindungi dengan vegetasi, infrastruktur hijau/ramah lingkungan, dan/atau rekayasa struktur penguat dan tanggul?	• Community council member	Ya / Sebagian besar / Sebagian besar tidak / Tidak / Tidak relevan untuk komunitas ini / Saya tidak tahu
26		Apakah lahan basah alami dilindungi dari kegiatan budidaya atau	• Community council member	Ya / Sebagian besar / Sebagian besar tidak / Tidak / Tidak relevan

		pembangunan dan ditingkatkan dengan rekayasa atau pengelolaan lahan basah?		untuk komunitas ini / Saya tidak tahu
27		Apakah komunitas pesisir terlindungi dari gelombang badai dengan adanya bukit pasir, lahan basah, hutan bakau yang lebat, terumbu karang lepas pantai, atau melalui tanggul, tembok penahan, atau struktur bangunan yang dibangun dengan baik dan terawat?	• Community council member	Ya / Sebagian besar / Sebagian besar tidak / Tidak / Tidak relevan untuk komunitas ini / Saya tidak tahu
28		Apakah perubahan iklim (dan kenaikan permukaan air laut jika relevan) dipertimbangkan secara aktif dalam pengelolaan area batas daratan-perairan?	• Community council member	Ya / Sebagian besar / Sebagian besar tidak / Tidak / Tidak relevan untuk komunitas ini / Saya tidak tahu
29	(Flood): Governance	Apakah peta risiko banjir telah dikembangkan untuk komunitas ini dalam lima tahun terakhir?	• Community council member • Community leader • DRR/CC official • Development/planning official	Ya / Tidak / Saya tidak tahu
30		Apakah pemetaan risiko banjir mencakup komponen kerentanan?	• Community council member • Community leader • DRR/CC official • Development/planning official	Ya / Tidak / Saya tidak tahu
31		Apakah peta risiko banjir digunakan dalam perencanaan dan tindakan manajemen risiko?	• Community council member • Community leader • DRR/CC official • Development/planning official	Ya / Tidak / Saya tidak tahu
32		Apakah ada rencana pengurangan risiko banjir untuk komunitas ini?	• DRR/CC official • Local response services	Ya / Tidak / Saya tidak tahu

33		Apakah rencana tersebut mencakup Prospective Risk Reduction dan korektif?	• DRR/CC official • Local response services	Ya / Tidak / Saya tidak tahu
34		Apakah rencana pengurangan risiko banjir ditinjau dan diperbarui secara berkala?	• DRR/CC official • Local response services	Ya / Tidak / Saya tidak tahu
35		Apakah ada sistem untuk mengumpulkan data mengenai dampak langsung dan tidak langsung dari banjir pada komunitas ini?	• Community council member • Development/planning official	Ya / Tidak / Saya tidak tahu
36		Apakah data ini banyak digunakan oleh pemangku kepentingan dan dinas utama untuk meningkatkan manajemen risiko banjir?	• Community council member • Development/planning official	Ya / Tidak / Saya tidak tahu
37		Apakah proyeksi iklim masa depan dan data layanan iklim banyak digunakan dalam pengambilan keputusan?	• Community council member • Development/planning official	Ya / Tidak / Saya tidak tahu
38		Apakah ada sumber pendanaan untuk mendukung pemulihan komunitas? Silakan centang semua opsi yang berlaku.	• Community council member • DRR/CC official • Development/planning official	Ya, ada anggaran pemerintah khusus untuk pemulihan banjir / Memang benar, terdapat pendanaan pemulihan banjir yang dapat diandalkan dari sumber-sumber non-pemerintah / Di masa lalu, komunitas kami menerima dana, namun dana tersebut hanya menutupi sebagian kebutuhan kami / Tidak, tidak ada anggaran khusus untuk pemulihan banjir / Lainnya / Saya tidak tahu

39		Apakah pendanaan yang tersedia mudah diakses dan diterima dengan cepat sehingga dapat digunakan?	• Community council member • DRR/CC official • Development/planning official	Pendanaan pemulihan mudah diakses dan tiba dengan cepat / Pendanaan sulit diakses tetapi tiba dengan cepat / Pendanaan mudah diakses tetapi lambat sampainya / Pendanaan tidak mungkin diakses atau tiba dengan terlambat sehingga tidak dapat digunakan / Tidak ada dana yang tersedia / Lainnya / Saya tidak tahu
40	(Flood): Life and Health	Apakah ada rencana untuk keberlangsungan layanan kesehatan saat banjir? Silakan centang semua opsi yang berlaku.	• Community council member • Community health worker • Health official	Ada rencana kontijensi untuk manajemen staf / Ada keberlangsungan rencana operasional / Ada keberlangsungan rencana perawatan untuk pasien / Ada daya cadangan untuk seluruh fasilitas / Terdapat daya cadangan yang terbatas untuk layanan-layanan penting, namun sebagian besar bangunan tidak akan mempunyai aliran listrik / Tidak ada daya cadangan / Tidak ada rencana untuk keberlangsungan layanan / Lainnya / Saya tidak tahu
41		Akankah fasilitas kesehatan tetap dapat diakses dengan aman ketika terjadi banjir?	• Community council member • Community health worker • Health official	Fasilitas layanan kesehatan akan tetap dapat diakses oleh semua orang, termasuk mereka yang menggunakan transportasi umum atau berjalan kaki / Fasilitas layanan kesehatan akan sulit diakses secara aman oleh

				sebagian kecil komunitas / Fasilitas layanan kesehatan akan sulit atau berbahaya untuk diakses oleh sebagian besar komunitas / Tidak ada fasilitas kesehatan yang tersedia untuk komunitas ini / Lainnya / Saya tidak tahu
42		Apakah rencana tanggap darurat banjir mencakup pencegahan kekerasan dalam keluarga?	• DRR/CC official • Local response services • Women/gender official	Ya / Tidak / Saya tidak tahu
43		Sejauh mana personel tanggap darurat bencana telah dilatih dalam perlindungan kekerasan dalam keluarga?	• DRR/CC official • Local response services • Women/gender official	Seluruh atau sebagian besar personel tanggap darurat bencana telah menerima pelatihan / Beberapa personel tanggap darurat bencana telah mendapatkan pelatihan / Hanya sedikit personel tanggap darurat bencana telah menerima pelatihan / Sangat sedikit atau bahkan tidak ada personel tanggap darurat bencana yang menerima pelatihan
44	(Flood): Lifelines	Apakah ada anggaran pengurangan risiko khusus dari mekanisme pendanaan lain yang secara aktif digunakan untuk melaksanakan Priority pengurangan risiko banjir? Silakan centang semua opsi yang berlaku.	• Community council member • DRR/CC official • Development/planning official	Ya, ada anggaran tahunan pemerintah yang khusus / Ya, ada pendanaan khusus dari sumber non-pemerintah / Ada pendanaan, tapi tidak teratur atau tidak dapat diprediksi / Tidak ada anggaran pengurangan risiko / Bukan dari salah satu di atas / Saya tidak tahu
45		Apakah investasi pengurangan risiko banjir memberikan manfaat yang adil	• Community council member • DRR/CC official	Ya / Investasi agak tidak adil / Investasi sangat tidak adil / Tidak

		bagi seluruh penduduk, baik dalam komunitas ini maupun dibandingkan dengan komunitas lain?	• Development/planning official	ada anggaran pengurangan risiko / Lainnya / Saya tidak tahu
46		Apakah ada rencana tanggap darurat banjir untuk komunitas ini?	• DRR/CC official • Local response service	Ya / Tidak / Saya tidak tahu
47		Apakah rencana tanggap darurat banjir mempunyai rencana yang ditargetkan untuk memenuhi kebutuhan spesifik semua kelompok sosial termasuk semua kelompok rentan?	• DRR/CC official • Local response service	Ya / Tidak / Saya tidak tahu
48		Apakah rencana tersebut diuji dan diperbarui secara berkala dengan melibatkan semua organisasi yang berpartisipasi?	• DRR/CC official • Local response service	Ya / Tidak / Saya tidak tahu
49		Kira-kira berapa persentase pelaku usaha atau pemberi kerja di komunitas yang mempunyai rencana untuk meminimalkan kerugian dan tetap menjalankan usahanya jika terjadi banjir?	• Local business person	Lebih dari 80% / 50% - 80% / 20% - 50% / Kurang dari 20% / Saya tidak tahu
50	(Flood): Livelihoods	Sumber pembiayaan apa yang dimiliki dunia usaha ketika terjadi banjir? Silakan centang semua opsi yang berlaku	• Local business person	Asuransi banjir / Asuransi keberlangsungan usaha / Jalur kredit terbuka atau pinjaman yang telah disetujui sebelumnya dengan lembaga keuangan / Tabungan darurat / Lainnya / Bukan dari salah satu di atas / Saya tidak tahu

Appendix 4: Translation of Focus Group Discussion Question in Bahasa Indonesia

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
1	(Generic) : Governance	Siapa kelompok sosial utama, termasuk kelompok rentan dan terpinggirkan, dalam komunitas ini?	• Local government committee • Community council • Council of elders • Local NGO/CBO • Religious council • Society • Womens group • Youth group	• BPBD: All residents (living in Degayu prior to the construction of the embankment) are considered economically vulnerable. From an economic vulnerability perspective alone, both individuals with fixed incomes and those relying on daily wages are equally affected.
2		Berapa banyak dari kelompok sosial tersebut, termasuk kelompok rentan dan terpinggirkan, yang mempunyai atau memberi masukan aktif dalam pengambilan keputusan mengenai manajemen risiko bencana?	• Local government committee • Community council • Council of elders • Local NGO/CBO • Religious council • Society • Womens group • Youth group	• BPBD: Most residents are involved. BPBD has established a Disaster Resilient Urban Village (Kelurahan Tangguh Bencana), and mapping forums include all stakeholders. The community is actively engaged. Degayu has been designated as a Disaster Resilient Urban Village (Katana), with planning documents developed for each neighborhood unit (RW). • BMKG Maritim dan DPMPPA Participation from persons with disabilities and the elderly is very limited. They lack experience in speaking in public forums. Similarly, women have limited opportunities to express their opinions. • DPU: While the community participates in Musrenbang

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
				(development planning forums), vulnerable groups still have limited opportunities to voice their concerns. BKM confirmed the statements from BMKG and DPMPPA, emphasizing that vulnerable groups are rarely provided with a space to share their views in public forums.
3		Apakah ada proses perencanaan penggunaan lahan yang jelas dan transparan?	- Local government committee - Community council - Community planning committee - Community productive users group - Local NGO/CBO	- Local government committee: There are existing spatial plans (RTRW and RDTR) which include community involvement through Focus Group Discussions (FGDs). - Community productive users group: Due to the area becoming inundated by the sea, aquaculture is considered a suitable alternative, as the subdistrict-owned agricultural land (tanah bengkok) is no longer visible. Therefore, the entire area could be repurposed for fish farming. - Local NGO/CBO: Plans are in place to initiate cricket farming on abandoned land. However, lack of capital is a constraint. Support and funding access from the subdistrict head (Lurah) is urgently needed.
4		Apakah Anda setuju bahwa perencanaan penggunaan lahan	- Local government committee - Community council	Local government committee: Land use is legally guided by hazard

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
		didasarkan pada peta bahaya dan risiko?	• Community planning committee • Community productive users group • Local NGO/CBO	and risk assessments; however, field-level enforcement and strengthening efforts remain insufficient. • Community planning committee: There is a need for a designated waste disposal map, as improper waste dumping can contaminate water sources, adversely affecting fish pond farmers.
5		Apakah Anda setuju bahwa perencanaan penggunaan lahan didasarkan pada proyeksi perubahan iklim dan bagaimana perubahan iklim dapat mengubah lanskap risiko?	• Local government committee • Community council • Community planning committee • Community productive users group • Local NGO/CBO	• Local government committee: The 2020 Spatial Plan (RTRW) and the upcoming 2024 Detailed Spatial Plan (RDTR) are available. The RTRW includes provisions for Building Coverage Ratio (KDB) and Green Open Space (RTH) regulations, as well as restrictions on groundwater extraction. While 20% of land is designated for public green space, only 13% is currently achieved in practice. Aquaculture activities must also comply with the RTRW, which has integrated climate projections and disaster risk considerations. • Community planning committee: Dry lands should be carefully planned for sustainable use, with a suggestion to allocate them for agricultural purposes. • Community productive users group: Land use for both fisheries and agriculture follows official

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
				guidelines. The Agriculture Office has conducted pilot trials for saline-tolerant rice cultivation.
6		Apakah sumber daya alam dipelihara sedemikian rupa sehingga bermanfaat bagi seluruh komunitas? silakan centang semua opsi yang berlaku.	• Local government committee • Community council • Community planning committee • Community productive users group • Council of elders • Local NGO/CBO • Society • Womens group • Youth Group	• DKP: Most land use decisions are made independently by landowners. However, the DKP provides continuous support and guidance aligned with local livelihood patterns. • DPMPPA: Previously supported women's groups in developing mangrove-based enterprises. • DLH: Di kawasan Degayu ada komunitas mengelola Mangrove, adanya perbaikan lahan dilakukan oleh DLH, dan stimulan dari kemitraan untuk pemulihan Mangrove, selain itu ada ekowisata floating Mangrove. There is a community in Degayu involved in mangrove management. DLH has conducted land restoration efforts and facilitated mangrove rehabilitation through partnerships and stimulus programs. Additionally, a floating mangrove ecotourism initiative has been developed.. • Community planning committee: There is currently no access to capital for revitalizing the subdistrict-owned land (tanah bengkok).

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
				• Society: There is an aspiration to establish a Mini Mangrove Information Center (PIM Mini).
7		Apakah sumber daya alam dalam kondisi baik dan dikelola secara berkelanjutan?	• Local government committee • Community council • Community planning committee • Community productive users group • Council of elders • Local NGO/CBO • Society • Womens group • Youth Group	• Dinperpa: Field conditions remain suboptimal, especially in rice fields that have been submerged for extended periods, with residual saltwater effects still present. • DPU: Due to poor soil absorption, rainwater is discharged into the sea using pumps. • Community planning committee: The current condition is stable, but there is no clear projection or plan for future action.
8		Apakah pemerintah mengetahui perkiraan perubahan iklim di masa depan?	Local government committee	Climate information is reliably provided by BMKG. The city government utilizes studies from the DLH (Environmental Agency) and RAD API. The DKP (Fisheries Office) uses studies from BIG (Geospatial Information Agency) concerning predictions for the submersion of Java's northern coastline. DPU (Public Works Department) always considers projections, especially related to land subsidence, pump needs, flooding projections, and drainage systems.
9		Apakah pemerintah mempunyai rencana untuk beradaptasi terhadap perubahan iklim?	Local government committee	Guidelines from RAD API are already in place. There are discussions related to renewable

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
				energy (EBT) with the Local Government Committee, including the use of solar panels.
10		Apakah pemerintah mempunyai anggaran untuk menindaklanjuti rencana adaptasi perubahan iklim tersebut?	Local government committee	Evaluations are continuously carried out.
11		Apakah pemerintah meninjau rencana investasi modal untuk memastikan bahwa perubahan iklim telah ditangani secara memuaskan?	Local government committee	DPU: There are no specific studies on flood reduction investments, but infrastructure funding is included in the annual work plan (Renja).
12	(Flood) Governance	Terdapat rencana pengurangan risiko banjir yang tepat untuk komunitas ini. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	- Local government committee - Community council - Community planning committee - Community productive users group - Council of elders - Local NGO/CBO - Womens group - Youth Group	- BPBD: Katana, pumping stations, and coastal embankments are in place. - Community productive users group: There are no floods currently, but the community is focused on economic recovery. They previously won a national award for duck farming (RW 07 and RW 08). However, the issue of pollution from duck manure remains unresolved. The community hopes to relocate duck farming to the subdistrict-owned land (tanah bengkok).
13		Rencana pengurangan risiko banjir mencakup Prospective Risk Reduction dan korektif. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	- Local government committee - Community council - Community planning committee - Community productive users group - Council of elders	Community productive users group: Some residents, including Mr. Sinang, agree that the 50-hectare dry land can be used for a reservoir. However, some of this land has already been acquired by Chinese investors.

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
			- Local NGO/CBO - Womens group - Youth Group	
14		Rencana pengurangan risiko banjir ditinjau dan diperbarui secara berkala. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	- Local government committee - Community council - Community planning committee - Community productive users group - Council of elders - Local NGO/CBO - Savings group - Womens group - Youth Group	Community planning committee: Degayu has a flood risk reduction plan, but it has not been updated regularly. For instance, the embankment in Bandengan (using Bandengan as an example due to the previous subdistrict head's history there) is only 2 years old.
15		Siapa saja pemangku kepentingan kunci yang harus dilibatkan dalam perencanaan dan tindakan manajemen risiko banjir untuk komunitas ini?	- Local government committee - Community council - Community planning committee - Community productive users group - Council of elders - Local NGO/CBO - Religious council - Savings group - Society - Womens group - Youth Group	Local government committee: The roles of government, private sector, and the community are involved. However, the role of the private sector remains an ongoing challenge. Participation from OPD (Local Government Agencies) and the community is considered good.
16		Berapa banyak dari pemangku kepentingan kunci yang terlibat secara aktif dalam perencanaan dan tindakan manajemen risiko banjir?	- Local government committee - Community council - Community planning committee	

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
			• Community productive users group • Council of elders • Local NGO/CBO • Religious council • Savings group • Society • Womens group • Youth Group	
17	(Generic) : Life and Health	Apakah layanan kesehatan tersedia dalam jangkauan fisik yang aman bagi komunitas ini?	• Civil protection group • Community council • Council of elders • Society • Womens group	
18		Beberapa kelompok komunitas mungkin mengalami hambatan dalam mengakses layanan kesehatan karena kondisi keuangan, sosial, budaya atau fisik mereka. Apakah sistem layanan kesehatan memenuhi kebutuhan semua kelompok komunitas, terutama kelompok rentan atau terpinggirkan, untuk menjamin akses?	• Civil protection group • Community council • Council of elders • Society • Womens group	
19	(Flood) : Life and Health	Untuk mendukung tanggap darurat banjir, evakuasi dan Pencarian & Penyelamatan, manakah dari hal-hal berikut yang dimiliki oleh komunitas? Pilih semua yang berlaku. Silakan centang semua opsi yang berlaku.	• Local government committee • Community council • Community planning committee • Council of elders • Local NGO/CBO • Society • Womens group • Youth Group	

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
20	(Flood) : Assets	Apakah Anda yakin bahwa peralatan darurat banjir berada dalam kondisi yang baik, diuji secara rutin, dan akan berfungsi dengan baik?	- Local government committee - Community council - Community planning committee - Council of elders - Local NGO/CBO - Society - Womens group - Youth Group	- Community planning committee: Some infrastructure is functional, but there is a lack of maintenance. Many boats have been sold because the water levels have receded. - Local NGO/CBO: In RW 08, there is a lack of equipment. The fishermen only have access to boats on loan.
21		Apakah semua kelompok di komunitas mampu mengakses infrastruktur dan peralatan darurat?	- Local government committee - Community council - Community planning committee - Council of elders - Local NGO/CBO - Society - Womens group - Youth Group	Local government committee: Not everyone has access to the necessary resources, especially vulnerable groups, who require specialized assistance to use them.
22		Apakah komunitas dan aset-aset komunalnya dilindungi melalui kombinasi tindakan perlindungan banjir struktural dan non-struktural?	- Local government committee - Community council - Community planning committee - Community productive users group - Local NGO/CBO - Society	Local government committee: Not all of Degayu is prone to flooding. Most areas are protected by embankments, but there are still regions that remain unprotected and prone to inundation.
23		Apakah tindakan perlindungan terhadap banjir dapat diandalkan, dipelihara secara rutin, dan tidak menimbulkan risiko baru?	- Local government committee - Community council - Community planning committee - Community productive users group	Local government committee: Yes, the embankments have proven effective in reducing flooding in protected areas. However, the challenge lies in the shifting floodwaters towards the

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
			- Local NGO/CBO - Society	east and the need for regular maintenance of infrastructure. Local NGO/CBO: We are optimistic that the embankment is reliable, as its structural design is stronger than the embankments in Bandengan.
24		Apakah perencanaan perlindungan di masa depan secara aktif mempertimbangkan potensi dampak perubahan iklim?	- Local government committee - Community council - Community planning committee - Community productive users group - Local NGO/CBO - Society	
25	(Flood) : Lifelines	Ada rencana tanggap darurat banjir yang tepat untuk komunitas ini. Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	- Local government committee - Community council - Community planning committee - Community productive users group - Council of elders - Local NGO/CBO - Savings group - Society - Womens group - Youth Group	There is a disaster response post located in Degayu
26		Rencana tanggap darurat banjir mencakup rencana yang ditargetkan untuk memenuhi kebutuhan spesifik semua kelompok sosial termasuk semua kelompok rentan.	- Local government committee - Community council - Community planning committee - Community productive users group	Local government committee: A Disaster Risk Assessment has been conducted, which includes emergency response measures that take vulnerable groups into account.

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		Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	• Council of elders • Local NGO/CBO • Savings group • Society • Womens group • Youth Group	
27		Rencananya diuji dan diperbarui secara berkala dengan melibatkan semua organisasi yang berpartisipasi? Apakah Anda sangat setuju, setuju, tidak punya pendapat, tidak setuju, atau sangat tidak setuju dengan pernyataan tersebut?	• Local government committee • Community council • Community planning committee • Community productive users group • Council of elders • Local NGO/CBO • Savings group • Society • Womens group • Youth Group	• Local government committee: yes.
28		Apakah anggota komunitas menerima peringatan dini banjir dari pemerintah, dinas terkait cuaca atau sumber terpercaya lainnya?	• Local government committee • Community council • Community planning committee • Community productive users group • Council of elders • Local NGO/CBO • Religious council • Society • Womens group • Youth Group	• BMKG: BMKG directly provides information to BPBD. • BPBD shares the information with Tagana and the Disaster Risk Reduction Forum. Each volunteer then disseminates the information to their respective subdistrict
29		Jika anggota komunitas menerima peringatan dini banjir, apakah mereka	• Local government committee • Community council	• BMKG: Information that circulates beyond BMKG's control is difficult

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		dapat menggunakan peringatan tersebut untuk mengambil tindakan perlindungan atau pencegahan? Silakan centang semua opsi yang berlaku.	• Community planning committee • Community productive users group • Council of elders • Local NGO/CBO • Religious council • Society • Womens group • Youth Group	to manage, but there have been efforts to socialize early warning systems for floods to fishermen and the general public.
30	(Flood) : Livelihoods	Apakah prakiraan banjir dibuat untuk wilayah ini?	• Local government committee • Community council • Community productive users group	
31		Apakah informasi prakiraan cuaca disampaikan kepada pihak berwenang secara tepat waktu untuk disebarluaskan dan memberikan peringatan darurat?	• Local government committee • Community council • Community productive users group	• Local government committee: The early warning system provides alerts 1-3 hours in advance, while flood prediction (for tidal floods) offers at least a 24-hour forecast.
32		Apakah informasi prakiraan dikomunikasikan dengan cara yang dapat dipahami dan digunakan oleh pihak berwenang?	• Local government committee • Community council • Community productive users group	Local government committee: For airports, ports, and other facilities, the early warning messages have been tailored to meet specific needs.
33	(Flood) : Natural Environment	Apakah lahan miring (dengan kelerengan) dipelihara atau dilindungi sedemikian rupa sehingga mengurangi limpasan air, erosi dan tanah longsor?	• Local government committee • Community council • Community planning committee • Community productive users group • Council of elders • Local NGO/CBO • Society	• Local government committee & community council: There are no sloping areas in the coastal zone.

No	Tema	Pertanyaan yang didiskusikan	Peserta FGD (Stakeholders)	Catatan
			• Womens group • Youth Group	
34		Apakah saluran air dan fitur drainase alami lainnya dilestarikan secara aktif, dan dilengkapi dengan area retensi air hujan dan kanal buatan sehingga banjir dapat dicegah bahkan ketika terjadi badai ekstrem?	• Local government committee • Community council • Community planning committee • Community productive users group • Council of elders • Local NGO/CBO • Society • Womens group • Youth Group	• Local government committee: Sedimentation normalization in the Loji River, waste screening to prevent damage to pumps, and maintenance of the city's infrastructure (not just in Degayu) are all part of ongoing efforts.
35		Apakah infrastruktur ramah lingkungan dan/atau solusi berbasis alam digunakan secara aktif untuk mengatasi manajemen risiko banjir?	• Local government committee • Community council • Community planning committee • Community productive users group • Council of elders • Local NGO/CBO • Society • Womens group • Youth Group	• DKP: Bio-pore pits have proven ineffective as the soil is easily washed away after digging 30 cm, releasing water. Mangrove planting has also failed repeatedly. Hard surface structures are needed, and the land's slope depends on pumps due to ongoing land subsidence. • DPU: Previously, pumps used fuel-based energy. We are committed to reducing emissions by shifting to electricity-powered pumps. • DLH: Raising public awareness about environmental protection, especially concerning waste disposal behaviours, remains a major challenge.