

Development of an Assessment Tool in Evaluating the Inclusivity of Evacuation Facilities among the Vulnerable Sectors of Santo Tomas, Pampanga

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Abstract:

The Asia-Pacific region, characterized by its dynamic and vulnerable landscapes, accommodates a vast urban population of 742 million individuals residing in areas prone to multiple hazards, ranging from 'extreme' to 'high' risk levels, including cyclones, earthquakes, floods, and landslides. Notably, as of 2016, eight out of the ten most disaster-prone cities in the world are situated in the Philippines, with City of San Fernando, Pampanga, ranking fifth among them. Similarly, despite its small land area relative to other municipalities in Pampanga, Santo Tomas faces significant risks of flooding and earthquakes. Initial self-assessment by the Municipal Disaster Risk Reduction Office of Santo Tomas suggests that existing evacuation centers may not adequately cater to the diverse needs of vulnerable sectors during disasters. This study aims to evaluate the inclusivity of evacuation facilities through a developed assessment tool and propose recommendations to enhance inclusivity in disaster preparedness. The methodological framework comprises three phases: feasibility study, tool development, and application. The feasibility study indicates limited inclusivity features in the evacuation facilities of Santo Tomas, underscoring the importance of addressing diverse needs. Subsequent validity and reliability testing, which are part of the tool development phase, confirm the efficacy of the tool, with a Cronbach's alpha value of .834 indicating good reliability. In the tool application phase, the evaluation of three recommended evacuation facilities, namely Buklud Ning Lugud, San Vicente Evacuation Center, and Poblacion Multipurpose Covered Court, reveals strengths and areas for improvement, particularly in ramps, handrails, and child-friendly spaces. Out of the three, San Vicente Evacuation Center sets the benchmark for evacuation facilities with a general mean of 4.115, indicating substantial compliance, while Buklud Ning Lugud and Poblacion Multipurpose Covered Court have 3.386 and 3.191, respectively. In summary, the evacuation facilities in Santo Tomas, Pampanga, demonstrate compliance with inclusivity guidelines. However, further improvements are necessary to fully meet these guidelines and accommodate the diverse needs of all sectors.

Keywords —disasters, evacuation facilities, inclusivity, vulnerable sectors

I. INTRODUCTION

The Asia-Pacific region, with its dynamic and vulnerable terrains, is home to a staggering 742 million urban inhabitants.

These individuals reside amidst multi-hazard hotspots, facing elevated levels of risk categorized as 'extreme' to 'high' due to the looming threats posed by cyclones, earthquakes, floods,

and landslides [1]. Projections indicate an anticipated surge in this demographic to approximately 980 million by the year 2030. Furthermore, a recent comprehensive analysis encompassing 1,300 cities globally revealed a noteworthy trend: among the top 100 cities most exposed to natural hazards, over fifty percent belong to four nations within the Asia-Pacific region, namely Bangladesh, China, Japan, and the Philippines.

The Philippines, located along the Pacific Ring of Fire and at the center of a typhoon belt, is not just another country prone to natural disasters. It is, in fact, one of the most disaster-prone countries in the world, as dubbed by the World Bank. In 2018, the country ranked third among the countries for population exposure and vulnerability to disaster. Cyclones, typhoons, volcanic eruptions, and earthquakes are not just occasional occurrences but the most frequent disasters recorded in the Philippines. These recorded disasters have disrupted Filipinos' lives, especially those in the vulnerable sector [2].

Central Luzon has a combination of mountains, extinct and active volcanoes, hectares of green farmlands, and natural sea harbors [3]. It is acknowledged to be susceptible to hydrometeorological threats, including typhoons, thunderstorms, intense rainfall, and tornadoes, which have the potential to result in floods, landslides, and harm to agriculture and infrastructure [4]. Notably, Central Luzon is identified as having the highest incidence of disasters in the specified area [5].

According to the Asian Center for Flood Control, as of 2016, 8 out of the 10 most disaster-prone cities in the world are from the Philippines, and the City of San Fernando, Pampanga, ranked 5th out of the 10 cities [6]. Among the frequent disasters that hit the Philippines, typhoons and floods are common in Pampanga. Santo Tomas, Pampanga, has notably experienced the same disasters. Santo Tomas has the smallest land area among the municipalities of Pampanga, yet it is still prone to flooding and earthquakes.

II. METHODOLOGY

This chapter presents the research methodology employed to develop an assessment tool. This chapter presents the Methodological Framework of the study. The framework is divided into three phases. Phase 1 is the feasibility study, and under this are the respondents, sampling technique, ethical considerations, and statistical analysis. Phase 2 is Tool Development; the construct validation, reliability, and statistical analysis are under this. Lastly, Phase 3 is the Tool Application. Under this phase are the research locale, respondents, sampling technique, and statistical analysis.

A. Methodological Framework

The research methodology is structured to encompass distinct phases, each contributing to the development and application of an assessment tool for evaluating the inclusivity of evacuation facilities for the vulnerable sectors.

Phase 1: Feasibility Study - Research Locale - Justification of the Research Locale - Sampling Technique and Respondents - Ethical Considerations
Phase 2: Tool Development - Construct and Content Validation - Reliability
Phase 3: Tool Application - Sampling Technique and Respondents - Statistical Analysis

Fig. 1 Methodological Framework

B. Phase 1: Feasibility Study

A feasibility study was conducted to determine the current state of the evacuation facilities and the importance of inclusive evacuation facilities in Santo Tomas, Pampanga. It was done with the help of the evacuees from Santo Tomas and Pampanga, particularly the barangays San Matias, San Vicente, and Poblacion.

- 1) **Research Locale:** The Municipality of Santo Tomas has the smallest land area in Pampanga, about 1,467.5 hectares. Based on the latest census of the Philippine Statistics Authority in 2020, the number of households in the municipality is 10,711. The study took place in this municipality because despite having the smallest land area in the province, a total of 1,079 households were still affected by flooding [7]. The table below lists the working evacuation facilities of the municipality of Santo Tomas.

TABLE I
Existing Evacuation Facilities of Santo Tomas and its Capacities

EVACUATION FACILITIES	LOCATION	CAPACITY
Municipal Evacuation Center	San Vicente	60 families
San Vicente Evacuation Center	San Vicente	40-50 families
Evacuation Center	San Vicente	40-50 families
Buklud Ning Lugud	San Matias	25 families
Santo Niño Chapel	Santo Niño (Sapa)	80 families
Poblacion Multipurpose	Poblacion	15 families
Poblacion Multipurpose Covered Court	Poblacion	35 families

San Bartolome Covered Court	San Bartolome	40 families
Moras de la Paz Covered Court	Moras Dela Paz	40 families
Sto Rosario Pau Covered Court	Sto Rosario (Pau)	40 families

After the steps in tool development, it was utilized to assess the evacuation facilities of Santo Tomas, Pampanga. According to the MDRRMO of Santo Tomas, the top three barangays susceptible to disasters are San Matias, San Vicente, and Poblacion. The developed assessment tool assessed one evacuation facility for each susceptible barangay.

The evacuation facilities that were assessed are the BukludningLugud in Barangay San Matias, the Evacuation Center in Barangay San Vicente, and the Poblacion Multipurpose Covered Court in Barangay Poblacion. The selection of these evacuation facilities was in accordance with the recommendation of MDRRMO of Santo Tomas, which stated that these facilities are the most functional and used among the stated barangays.

BukludningLugud

BukludningLugud is an evacuation facility situated in LGomez, San Matias. This facility accommodates 25 families from LGomez who require shelter during disasters, particularly heavy floods. Additionally, it serves as a function hall and a prayer room when not in use by evacuees. The distance from the area where the evacuees originate to BukludningLugud is approximately 180 meters.

San Vicente Evacuation Center

San Vicente Evacuation Center is situated on Acacia Street, San Vicente. It accommodates approximately 40 – 50 families from Yakal Street. As it is a covered court, it can accommodate more evacuees due to its spacious interior. It has been designated as the official evacuation center of San Vicente as it meets most of the requirements for such facilities. Additionally, it features a child-friendly space on the stage's second floor, and it meets health facility requirements. The distance from the area where the evacuees originate to San Vicente Evacuation Center is approximately 180 meters.

Poblacion Multipurpose Covered Court

Poblacion Multipurpose Covered Court is situated in Rizal Street, Poblacion. It provides shelter for 35

families from Tizon Street during floods. While it is a covered court, some of the requirements of a designated evacuation center are limited. Nevertheless, it serves as the primary evacuation facility for the residents of Poblacion. The distance from the area where the evacuees originate to Poblacion Multipurpose Covered Court is approximately 115 meters.

2) **Justification of Research Locale:** The Municipality of Santo Tomas faces significant vulnerability to natural disasters, particularly flooding, as evidenced by the devastating impact of Typhoon Egay on July 26, 2023. The municipality was compelled to declare a state of calamity due to widespread flooding, affecting 2,587 families or 9,339 residents across its barangays. Moreover, the torrential waters caused damage to the agricultural and fishery sectors of the town, causing an estimated 7.25 million pesos in damages.

The damages of Typhoon Egay were not just limited to economic losses; they also damaged the livelihoods of the evacuees [7]. During the typhoon's destruction, the evacuation facilities of the municipality could not cater to the diverse needs of the evacuees, especially those from the vulnerable sectors. According to the initial assessment of the MDRRMO of Santo Tomas, the existing evacuation facilities were not designed for general use. For these reasons, an inclusivity assessment should be conducted for further improvements to the municipality to mitigate these challenges and enhance disaster management.

3) **Sampling Technique and Respondents:** The Raosoft sample size calculation was utilized to obtain the minimum number of respondents for the feasibility study. The calculation used a 90% confidence level and a 10% margin of error. The margin of error is 10% because the age of the respondents differs from one another. Applying these conditions to the overall population of the municipality at 42,846, the minimum sample size calculated is 68. However, the sample used in the study is 150 to attain more data from the respondents.

The feasibility study's respondents were the evacuees from barangays San Matias, San Vicente, and Poblacion. A total of 150 respondents, 50 per barangay, were surveyed accordingly. The respondents were divided into 30 citizens, 30 senior citizens, 30 PWDs, 30 children, and 30 pregnant women. The respondents were equally divided to ensure that all sectors were represented.

4) **Ethical Considerations:** The data collected for this study is gathered through the voluntary participation of the residents of Santo Tomas, Pampanga, and the registered civil engineers who participated in the study. Before participating in the study, each respondent

received a copy of the informed consent form. This document outlined their voluntary participation in the study and sought their consent for photo and video documentation. For respondents ages 10-12, consent was provided to their parents or guardians. The researchers prioritized adherence to the Data Privacy Act of 2012, ensuring that all gathered data are handled per its provisions and solely used for the study's intended purpose. Specifically, the data collected during and after the study will be treated with the utmost confidentiality.

Additionally, all authors of articles, related studies, literature, and other sources utilized in this paper are required to properly cite and acknowledge them in the Institute of Electrical and Electronics Engineering (IEEE) format.

C. Phase 2: Tool Development

The draft of the assessment tool started by searching for guidelines that an inclusive evacuation facility must have. The developed tool is in a 5-point Likert-scale format. These guidelines served as the basis of the developed tool in a 5-point Likert-scale format. This format provides an understanding of the respondents' views and perspectives regarding the inclusivity of evacuation facilities. The developed assessment tool was evaluated thoroughly to ascertain its content validity and reliability testing [8] before the survey was conducted. Pictures of the evacuation facilities were also taken as the basis for the respondents' answers to the tool.

- 1) **Construct and Content Validity:** Two methods were used to validate the developed assessment tool. One method is construct validity, which assesses how accurately a test measures its intended construct. A panel of professionals consisting of a psychometrician, a grammarian, and a statistician was consulted to evaluate the construct validity of the tool. Content validity pertains to the material's suitability and alignment with the subject under assessment [10]. A panel of professionals, including a registered civil engineer and a licensed architect, was consulted to evaluate content validity.

These validity tests are vital for establishing the overall validity of a particular testing approach [9]. A validation certificate was obtained from the professionals mentioned to ensure the validity and legitimacy of the tests.

- 2) **Reliability:** Reliability denotes the degree of consistency observed within the developed assessment tool [11]. In evaluating the reliability of the developed assessment tool, a pilot test was conducted at the sole evacuation center of Santo Tomas to ensure more reliable results from the assessment tool. For this reliability test, the total number of respondents is 40, and previous studies

highlight that this number is sufficient for the calculation of Cronbach's Alpha [12].

Cronbach's alpha was computed using SPSS software to test the reliability of the developed assessment tool. Cronbach's alpha is an important way of considering the reliability of an assessment tool. The idea of a reliable assessment tool is that there should be a covariance to the items provided relative to the computed variance.

The value of the alpha ranges from 0 to 1. The higher the value, the higher the reliability level. 0.70 or higher is typically considered acceptable Cronbach's alpha values [13]. The interpretations of Cronbach's alpha are listed in the table below.

TABLE II
Coefficient of Cronbach's Alpha and its Reliability Level
Source: researchgate.net/figure/The-Cronbachs-alpha-interpretation-22_tbl2_368232976

Coefficient of Cronbach's Alpha	Reliability Level
More than 0.90	Excellent
0.80 - 0.89	Good
0.70 - 0.79	Acceptable
0.60 - 0.69	Questionable
0.50 - 0.59	Poor
Less than 0.59	Unacceptable

The target alpha of the developed assessment tool is 0.70 or higher. These calculations were conducted through the SPSS software.

Table 3 shows the rate and its corresponding label utilized in the assessment tool. This shows as a guide for the readers to appreciate the results of the study.

TABLE III
Rating and Corresponding Verbal Equivalent of the Developed Tool

Rate	Verbal Equivalent
5.0	Fully Compliant
4.0 - 4.9	Substantially Compliant
3.0 - 3.9	Partially Compliant
2.0 - 2.9	Limitedly Compliant
1.0 - 1.9	Non-Compliant
N/A	Not Applicable

D. Phase 3: Tool Application

After devising a valid and reliable assessment tool, the study employed it to evaluate the level of inclusivity of the evacuation facilities. The developed tool was applied to the three evacuation facilities in Santo Tomas, Pampanga.

- 1) **Sampling Technique and Respondents:** The sampling technique is purposive sampling, which is a non-probability technique in which researchers rely on their judgment to select participants for the study [14].

The pilot testing and tool application respondents were 40 registered civil engineers with exposure to construction sites and municipal engineering staff. They were chosen for this study phase because they were exposed to municipal projects like evacuation facilities.

- 2) **Statistical Analysis:** The results from the respondents for the tool application were inputted to the SPSS software and treated accordingly. The statistical analysis used was the item statistics of the scale. The mean score for every guideline of the items was obtained to highlight the strengths and inclusivity features of every facility.

III. RESULTS AND DISCUSSION

This chapter presents the results and discussion of the study. The first part of this chapter presents the results of the feasibility study. Next is the pilot test results to ascertain the reliability of the developed assessment tool. The last part of this chapter presents the tool application results.

A. Feasibility Study Results

The feasibility study assessed the current state of evacuation facilities and the importance of inclusive evacuation facilities in Santo Tomas, Pampanga. It is divided into two sections: Section 1 presents the demographic profile of the respondents, and Section 2 presents the assessment of the need for inclusive evacuation facilities.

- 1) **Section: Demographic Profile:** The research sample comprised 150 evacuees selected from the barangays of San Matias, San Vicente, and Poblacion, with 50 individuals surveyed each barangay. The demographic composition of the respondents is presented in the table below.

Table IV
Demographic Composition of the Respondents

Sector	Frequency
Abled Citizens	30
Persons with Disabilities	30
Senior Citizens	30
Children (10-12 years old)	30
Pregnant Women	30
TOTAL	150

The respondents were distributed evenly across various sectors to ensure comprehensive coverage of

vulnerable populations relevant to the study. Individuals not belonging to vulnerable groups were also included to ensure inclusivity. The respondents were also asked regarding their status on when to evacuate during a disaster.

Table V
Frequency Table for the Status of the Respondents During Evacuation

In times of disaster, especially during typhoons, do you evacuate to your nearest evacuation facility?	Frequency
Yes, we need to evacuate immediately since our house is not safe from flooding.	119
Yes, if we are advised to evacuate by the authorities.	31
No, our house is safe if the rain is moderate.	0
No, we are sure that we are safe in our house in times of disaster.	0

The findings indicate that 79.33% of evacuees were compelled to evacuate immediately during disasters, particularly typhoons, due to concerns about flooding in their households. Conversely, 20.62% indicated that they only evacuated when instructed to do so by authorities.

- 2) **Section 2: Need Assessment:** The survey highlighted the challenges faced by the evacuees in their respective evacuation facilities. Table 6 shows the frequency of these challenges:

Table VI
Frequency Table for the Challenges Faced by the Evacuees

Challenge	Frequency
Limited private and personal space	90
Needs of all the evacuees are not provided	44
Limited transportation or vehicles to go in and out of the evacuation facility	33
Limited of clean and decent bathroom	62
limited of rescue vehicles and ambulance	22

The most frequent challenge that the evacuees encounter is the evacuation facilities' limited private

and personal space. Limited bathroom sanitation is also evident in the facilities.

The evacuees were also surveyed regarding the inclusivity features present in their respective evacuation facility. Table 7 shows the frequency of these structures:

Table VII
Frequency Table for the Inclusivity Features of the Evacuation Facilities

Inclusivity Features	Frequency
Structures that are helpful for the PWDs	21
Wide spaces in the bathroom for the mobility of wheelchairs	21
Wide and comfortable sleeping space for the senior citizens, pregnant women, and PWDs	24
Accessible medical facilities like first aid station	57
Safe and wide spaces for children	51

Respondents emphasize the accessibility of medical facilities, which is essential for providing healthcare to evacuees. However, notable deficiencies exist in structures aiding PWDs and bathroom spaces. Sleeping quarters also fall short in accommodating the needs of seniors, pregnant women, and PWDs.

Table VIII
Frequency Table for the Importance of Having an Inclusive Evacuation Facilities

Rating	Frequency
Very Important	141
Important	9
Somewhat Important	0
Not Important	0

Revealing these challenges and the limited inclusivity features of the evacuation facilities, 94 % of the evacuees stated that it is very important to have inclusive evacuation facilities. The remaining 6%

stated that it is important. To sum up, all evacuees agreed that it is important to have inclusive evacuation facilities.

- 3) **Pilot Test Results:** The pilot test was conducted at the distinct evacuation center in Santo Tomas, the Municipal Evacuation Center. This part of the study comprises the reliability statistics and the item statistics.

Table 9 presents the reliability statistics of the pilot test and shows the computed Cronbach's Alpha of the developed assessment tool. The assessment

Cronbach's Alpha	Number of Items
.834	50

tool includes 50 items.

Table IX
Reliability Statistics of the Pilot Test

The computed Cronbach's alpha coefficient stands at .834, indicating a level of internal consistency classified as "Good" according to the interpretation outlined in Table 2. This suggests that the developed assessment tool reliably measures the intended construct. Initially, the assessment tool comprised 50 items, and after the initial reliability test, the targeted Cronbach's alpha value was promptly attained. Consequently, no adjustments were made to the number of items in the assessment tool, which remained at its original count of 50 items.

Table 10 presents the item statistics of the pilot test. This includes the mean of all the items included in the assessment tool. The N signifies the total number of responses for every item.

Table X
Item Statistics for the Municipal Evacuation Center

Items	Mean	Verbal Equivalent
A.1. The site and sidewalk are flat (minimal level changes for better mobility and ensure flat uniform surfaces with surface water drainage in place).	4.2750	Substantially Compliant
A.2. Accessible and clear from rubble and debris.	4.3500	Substantially Compliant
B.1. The pathways are accessible and cleared from obstacles.	4.2750	Substantially Compliant
B.2. The ground is firm (compacted material, concrete), non-slippery, without obstacles for the wheel, the foot, or the crane.	4.1000	Substantially Compliant

B.3. Pathways are identified so that people know where to find the route.	4.1250	Substantially Compliant	E.2. Wide enough (at least 800 mm) with space adjacent to the door to enable people who use wheelchairs to pull or push the door open.	4.2500	Substantially Compliant
B.4. At least 120cm wide for a wheelchair to circulate.	4.1000	Substantially Compliant	E.3. With latch or handle that is easy to operate.	4.2250	Substantially Compliant
B.5. Protrusion hazards and/or overhead hazards above the path are located at the height of at least 2.20m above the ground.	4.0000	Substantially Compliant	E.4. With space beside the door to enable people to easily pull or push the door open.	4.2500	Substantially Compliant
B.6. Small steps or ground level changes are avoided.	4.0750	Substantially Compliant	E.5. Accessible and easy to open and close or people with disability.	4.2000	Substantially Compliant
B.7. Wheel guard prevents the wheelchair from tripping over and serves as a guide for blind users.	4.0750	Substantially Compliant	E.6. Door thresholds are less than or equal 1.2cm.	4.0500	Substantially Compliant
C.1. Entrance is at ground level, or it is equipped with a ramp or easy slope.	4.1250	Substantially Compliant	E.7. Door handles are located at a height of 90cm above the ground and should either be D-lever or vertical handles (easy to grab), a horizontal grab at a height of 80cm above the ground can be added to the doors to facilitate the closing).	4.0750	Substantially Compliant
C.2. Clear of obstacles.	4.4000	Substantially Compliant	E.8. Minimum height of the windows is 80cm.	3.9000	Partially Compliant
C.3. Easy and intuitive to locate for everyone, including persons with a vision or cognitive disability.	4.0750	Substantially Compliant	E.9. Windows are equipped with lever handles or similar system that easy to use.	3.8000	Partially Compliant
C.4. Connected to an accessible roadway.	4.0500	Substantially Compliant	F.1. Ramps have a safe slope, not greater than 1:12 to prevent wheelchairs from tipping over backwards.	3.8750	Substantially Compliant
C.5. Has a clear path that has a smooth surface.	4.0750	Substantially Compliant	F.2. Have a side edge or handrail to protect someone from wheeling off the edge.	4.2500	Substantially Compliant
C.6. Has curb ramps where sidewalks exist.	4.3250	Substantially Compliant	F.3. At least 900mm wide.	4.0750	Substantially Compliant
C.7. Openings are at least 80 cm wide, for a wheelchair to pass through (width of at least 90cm is more comfortable for wheelchair users and reduces hands injuries).	4.2500	Substantially Compliant	F.4. Have enough room at the top and bottom to provide a safe landing so wheelchairs can turn.	4.1500	Substantially Compliant
C.8. Entrances have contrasting color to make it easier for persons with visual impairment to identify them (the color of the doors are contrast with the wall. If the color of the doors does not contrast with the wall, door frames can be painted with a contrasting color).	4.1250	Substantially Compliant	F.5. Slope should not exceed 5%, one landing area at the top and one landing area at the bottom: minimum of 1.40m x 1.40m.	3.8000	Substantially Compliant
D.1. The stairs are not an obstacle for blind users or persons with low visions.	3.8500	Partially Compliant	G.1. Handrails are at a consistent height above each step (865-965 mm).	4.1250	Substantially Compliant
D.2. Equipped with handrails, color contrasting warning band (yellow paint) on step nosing, and step height of 15cm and step depth 30cm.	3.7750	Partially Compliant	G.2. Above the surface of the ramp for the entire length of the stair or ramp.	4.2500	Substantially Compliant
E.1. Doors are easy to open with minimal resistance.	4.1500	Substantially Compliant	G.3. Installed both on stairs and ramps at a height of 70cm and 90cm when the slope exceeds 5 percent.	4.1000	Substantially Compliant

G.4. Easy to grab and has a diameter of 4cm.	4.3000	Substantially Compliant	transfer (installed at a height of 80cm above the ground and strong enough to support body weight).		Compliant
G.5. Solid enough to support bodyweight.	4.1250	Substantially Compliant			
H.1. Wide enough to allow a wheelchair user to circulate and complete a full turn (Wheelchair users need a clear surface of 1.50 m x 1.50 m to complete a full turn).	4.1250	Substantially Compliant	K.1. One CFS for every 100 families is provided.	4.2250	Substantially Compliant
			K.2. Located near a clean toilet for boys and girls.	4.1750	Substantially Compliant
			L.1. There is an available health station or clinic.	4.3250	Substantially Compliant
H.2. Floor is solid, non-slippery and non-reflective.	4.1750	Substantially Compliant	L.2. The breastfeeding room or corner is easily accessible providing privacy, security, and supportive care.	3.9500	Partially Compliant
I.1. Electrical lighting has been provided to increase accessibility and safety.	4.3250	Substantially Compliant			
I.2. Switches or controls are located at a height of 90cm above the ground and easy to use.	4.3250	Substantially Compliant			
J.1. Pathway is connected to the sanitary facilities; most habitual, direct and the shortest.	4.4000	Substantially Compliant			
J.2. Space outside or inside the toilet is wide enough to allow a person in a wheelchair to complete a full turn (Clear surface of 1.5 m x 1.5 m, clear surface must be provided either inside or outside the cabin).	4.0750	Substantially Compliant			
J.3. Toilet seat at a height of 45-50cm.	3.9500	Partially Compliant			
J.4. Grab bar to facilitate the	3.9500	Partially			

TABLE XI
Item Statistics for BukludningLugud

Based on the table, the municipal evacuation center exhibited all the features of inclusivity. The evacuation center is substantially compliant with the prescribed guidelines, with a general mean of 4.127. This means that it adheres to the most critical or essential aspects, even if some minor requirements are not met.

B. Tool Application Results

After the validation and pilot test of the study, the tool was used at the three evacuation facilities in Santo Tomas. This part of the study presents the item statistics of the guidelines used in the developed assessment tool. Every item presents the evaluation of inclusivity to the evacuation facilities of Santo Tomas through the mean scores. Tables 11 to 13 presents the mean scores of the BukludningLugud, San Vicente Evacuation Center, and Poblacion Multipurpose Covered Court respectively.

Items	Mean	Verbal Equivalent			
			wheelchair to circulate.		Compliant
A.1. The site and sidewalk are flat (minimal level changes for better mobility and ensure flat uniform surfaces with surface water drainage in place).	4.5500	Substantially Compliant	B.5. Protrusion hazards and/or overhead hazards above the path are located at the height of at least 2.20m above the ground.	4.0500	Substantially Compliant
A.2. Accessible and clear from rubble and debris.	4.6500	Substantially Compliant	B.6. Small steps or ground level changes are avoided.	3.9750	Partially Compliant
B.1. The pathways are accessible and cleared from obstacles.	3.8000	Partially Compliant	B.7. Wheel guard prevents the wheelchair from tripping over and serves as a guide for blind users.	3.4500	Partially Compliant
B.2. The ground is firm (compacted material, concrete), non-slippery, without obstacle for the wheel, the foot, or the crane.	4.4750	Substantially Compliant	C.1. Entrance is at ground level, or it is equipped with a ramp or easy slope.	4.3000	Substantially Compliant
			C.2. Clear of obstacles.	4.5750	Substantially Compliant
B.3. Pathways are identified so that people know where to find the route.	4.2750	Substantially Compliant	C.3. Easy and intuitive to locate for everyone, including persons with a vision or cognitive disability.	4.4750	Substantially Compliant
B.4. At least 120cm wide for a	4.3000	Substantially			

C.4. Connected to an accessible roadway.	4.7250	Substantially Compliant	above the ground can be added to the doors to facilitate the closing).		
C.5. Has a clear path that has a smooth surface.	4.7250	Substantially Compliant	E.8. Minimum height of the windows is 80cm.	4.4750	Substantially Compliant
C.6. Has curb ramps where sidewalks exist.	2.8500	Limitedly Compliant	E.9. Windows are equipped with lever handles or similar system that easy to use.	3.6500	Partially Compliant
C.7. Openings are at least 80 cm wide, for a wheelchair to pass through (width of at least 90cm is more comfortable for wheelchair users and reduces hands injuries).	3.8250	Substantially Compliant	F.1. Ramps have a safe slope, not greater than 1:12 to prevent wheelchairs from tipping over backwards.	N/A	Not Applicable
C.8. Entrances have contrasting color to make it easier for persons with visual impairment to identify them (the color of the doors are contrast with the wall. If the color of the doors does not contrast with the wall, door frames can be painted with a contrasting color).	3.5750	Substantially Compliant	F.2. Have a side edge or handrail to protect someone from wheeling off the edge.	N/A	Not Applicable
			F.3. At least 900mm wide.	N/A	Not Applicable
			F.4. Have enough room at the top and bottom to provide a safe landing so wheelchairs can turn.	N/A	Not Applicable
			F.5. Slope should not exceed 5%, one landing area at the top and one landing area at the bottom: minimum of 1.40m x 1.40m.	N/A	Not Applicable
D.1. The stairs are not an obstacle for blind users or persons with low visions.	N/A	Not Applicable	G.1. Handrails are at a consistent height above each step (865-965 mm).	1.0750	Non-Compliant
D.2. Equipped with handrails, color contrasting warning band (yellow paint) on step nosing, and step height of 15cm and step depth 30cm.	N/A	Not Applicable	G.2. Above the surface of the ramp for the entire length of the stair or ramp.	1.2500	Non-Compliant
E.1. Doors are easy to open with minimal resistance.	4.2000	Substantially Compliant	G.3. Installed both on stairs and ramps at a height of 70cm and 90cm when the slope exceeds 5 percent.	1.1500	Non-Compliant
E.2. Wide enough (at least 800 mm) with space adjacent to the door to enable people who use wheelchairs to pull or push the door open.	4.3250	Substantially Compliant	G.4. Easy to grab and has a diameter of 4cm.	1.2000	Non-Compliant
E.3. With latch or handle that is easy to operate.	4.3500	Substantially Compliant	G.5. Solid enough to support bodyweight.	1.3500	Non-Compliant
E.4. With space beside the door to enable people to easily pull or push the door open.	4.5000	Substantially Compliant	H.1. Wide enough to allow a wheelchair user to circulate and complete a full turn (Wheelchair users need a clear surface of 1.50 m x 1.50 m to complete a full turn).	4.3250	Substantially Compliant
E.5. Accessible and easy to open and close or people with disability.	3.9500	Partially Compliant	H.2. Floor is solid, non-slippery and non-reflective.	4.3000	Substantially Compliant
E.6. Door thresholds are less than or equal 1.2cm.	4.2250	Substantially Compliant	I.1. Electrical lighting has been provided to increase accessibility and safety.	4.5500	Substantially Compliant
E.7. Door handles are located at a height of 90cm above the ground and should either be D-lever or vertical handles (easy to grab), a horizontal grab at a height of 80cm	4.0500	Substantially Compliant	I.2. Switches or controls are located at a height of 90cm	4.3000	Substantially Compliant

above the ground and easy to use.			of 80cm above the ground and strong enough to support body weight).		
J.1. Pathway is connected to the sanitary facilities; most habitual, direct and the shortest.	4.4500	Substantially Compliant	K.1. One CFS for every 100 families is provided.	1.0000	Non-Compliant
J.2. Space outside or inside the toilet is wide enough to allow a person in a wheelchair to complete a full turn (Clear surface of 1.5 m x 1.5 m, clear surface must be provided either inside or outside the cabin).	4.2000	Substantially Compliant	K.2. Located near a clean toilet for boys and girls.	1.0000	Non-Compliant
J.3. Toilet seat at a height of 45-50cm.	2.9750	Limitedly Compliant	L.1. There is an available health station or clinic.	2.4750	Limitedly Compliant
J.4. Grab bar to facilitate the transfer (installed at a height	2.9750	Limitedly Compliant	L.2. The breastfeeding room or corner is easily accessible providing privacy, security, and supportive care.	2.1250	Limitedly Compliant

The table above displays each item's mean scores for BukludningLugud. The items demonstrate a substantial level of compliance, with mean scores mostly exceeding 4. Specifically, the following items are substantially compliant: site and sidewalk are flat, accessible, and clear from rubble; pathways are firm, identified from the main road, wide enough, and clear from hazards; entrances are at ground level, clear of obstacles, and easy and intuitive to locate; doors are easy to open, wide enough, and with latch; door thresholds depth are appropriate, D-lever handles, and minimum height of windows of 80 cm; spaces inside is wide enough, and the floor is solid, non-slippery, and non-reflective; lightings are provided, and the height of switches is greater than 90 cm above the ground; and pathways to sanitary facilities are direct and shortest, and spaces inside is wide enough for a wheelchair to complete a full turn.

Furthermore, items such as handrails and the child-friendly space exhibit mean scores around 1, indicating non-compliance. These aspects are crucial for ensuring the inclusivity of the facility, particularly for PWDs who require assistance with mobility, and for children who require spaces

conducive to learning and recreation. This outcome underscores the necessity for improvements, including the installation of handrails and the establishment of child-friendly areas at the evacuation site

The items regarding stairs and ramps have been marked as N/A, as the facility falls under the classification of a bungalow type, with minimal elevations present. Despite the absence of ramps, individuals using wheelchairs can still navigate the facility freely due to the negligible elevations.

Table XII
Item Statistics for San Vicente Evacuation Center

Items	Mean	Verbal Equivalent
A.1. The site and sidewalk are flat (minimal level changes for better mobility and ensure flat uniform surfaces with surface water drainage in place).	4.4500	Substantially Compliant
A.2. Accessible and clear from rubble and debris.	4.3250	Substantially Compliant
B.1. The pathways are accessible and cleared from obstacles.	4.3250	Substantially Compliant
B.2. The ground is firm (compacted material, concrete),	4.4750	Substantially Compliant

non-slippery, without obstacle for the wheel, the foot, or the crane.			color contrasting warning band (yellow paint) on step nosing, and step height of 15cm and step depth 30cm.		Compliant
B.3. Pathways are identified so that people know where to find the route.	4.3500	Substantially Compliant	E.1. Doors are easy to open with minimal resistance.	2.5500	Limitedly Compliant
B.4. At least 120cm wide for a wheelchair to circulate.	4.5250	Substantially Compliant	E.2. Wide enough (at least 800 mm) with space adjacent to the door to enable people who use wheelchairs to pull or push the door open.	3.4250	Partially Compliant
B.5. Protrusion hazards and/or overhead hazards above the path are located at the height of at least 2.20m above the ground.	4.3250	Substantially Compliant	E.3. With latch or handle that is easy to operate.	3.8000	Partially Compliant
B.6. Small steps or ground level changes are avoided.	4.2750	Substantially Compliant	E.4. With space beside the door to enable people to easily pull or push the door open.	4.0250	Substantially Compliant
B.7. Wheel guard prevents the wheelchair from tripping over and serves as a guide for blind users.	3.9500	Partially Compliant	E.5. Accessible and easy to open and close or people with disability.	4.1000	Substantially Compliant
C.1. Entrance is at ground level, or it is equipped with a ramp or easy slope.	4.5500	Substantially Compliant	E.6. Door thresholds are less than or equal 1.2cm.	4.1750	Substantially Compliant
C.2. Clear of obstacles.	4.4250	Substantially Compliant	E.7. Door handles are located at a height of 90cm above the ground and should either be D-lever or vertical handles (easy to grab), a horizontal grab at a height of 80cm above the ground can be added to the doors to facilitate the closing).	3.7750	Partially Compliant
C.3. Easy and intuitive to locate for everyone, including persons with a vision or cognitive disability.	3.8500	Partially Compliant	E.8. Minimum height of the windows is 80cm.	4.0500	Substantially Compliant
C.4. Connected to an accessible roadway.	4.2500	Substantially Compliant	E.9. Windows are equipped with lever handles or similar system that easy to use.	3.8250	Partially Compliant
C.5. Has a clear path that has a smooth surface.	4.2750	Substantially Compliant	F.1. Ramps have a safe slope, not greater than 1:12 to prevent wheelchairs from tipping over backwards.	4.4250	Substantially Compliant
C.6. Has curb ramps where sidewalks exist.	4.4750	Substantially Compliant	F.2. Have a side edge or handrail to protect someone from wheeling off the edge.	4.3750	Substantially Compliant
C.7. Openings are at least 80 cm wide, for a wheelchair to pass through (width of at least 90cm is more comfortable for wheelchair users and reduces hands injuries).	4.5250	Substantially Compliant	F.3. At least 900mm wide.	4.1250	Substantially Compliant
C.8. Entrances have contrasting color to make it easier for persons with visual impairment to identify them (the color of the doors are contrast with the wall. If the color of the doors does not contrast with the wall, door frames can be painted with a contrasting color).	4.0250	Substantially Compliant	F.4. Have enough room at the top and bottom to provide a safe landing so wheelchairs can turn.	4.3750	Substantially Compliant
D.1. The stairs are not an obstacle for blind users or persons with low visions.	3.7750	Partially Compliant	F.5. Slope should not exceed 5%, one landing area at the top and one landing area at the bottom: minimum of 1.40m x 1.40m.	4.5500	Substantially Compliant
D.2. Equipped with handrails,	3.3500	Partially	G.1. Handrails are at a	4.3750	Substantially

consistent height above each step (865-965 mm).		Compliant	providing privacy, security, and supportive care.
G.2. Above the surface of the ramp for the entire length of the stair or ramp.	3.9500	Partially Compliant	<p>Table 12 showcases the mean scores attained by the San Vicente Evacuation Center. Similar with BukludningLugud, most items exhibit substantial compliance by the San Vicente Evacuation Center. The site and sidewalks are flat, accessible, and devoid of debris. Pathways are both accessible and unobstructed, featuring firm surfaces, clear identification from the main road, ample width, hazard-free conditions, and minimal changes in ground level. Entrances are equipped with stairs or gentle slopes, free from obstructions, connected to accessible roadways, furnished with curb ramps, wide enough for wheelchair passage, and distinguished by contrasting colors. Adjacent spaces to doors allow for easy pushing or pulling, are accessible for vulnerable sectors, and feature appropriately sized door thresholds and windows positioned at a height exceeding 80 cm. Ramps throughout the premises demonstrate substantial compliance, while handrails, consistently positioned at a height between 865-965 mm, are installed on both stairs and ramps, easy to grasp, and possess a diameter of approximately 4 cm.</p> <p>Conversely, items E1 and J4 demonstrate limited compliance, with mean scores around 2. It is imperative to install easily accessible doors and windows, as well as grab bars in sanitary facilities. Providing easy-to-open doors and windows is crucial, particularly during emergencies, to facilitate swift entry and exit from the facility. Additionally, grab bars in sanitary facilities enhance safety by reducing the risk of slipping on wet bathroom floors for all individuals.</p>
G.3. Installed both on stairs and ramps at a height of 70cm and 90cm when the slope exceeds 5 percent.	4.1000	Substantially Compliant	
G.4. Easy to grab and has a diameter of 4cm.	4.4750	Substantially Compliant	
G.5. Solid enough to support bodyweight.	4.4250	Substantially Compliant	
H.1. Wide enough to allow a wheelchair user to circulate and complete a full turn (Wheelchair users need a clear surface of 1.50 m x 1.50 m to complete a full turn).	4.7000	Substantially Compliant	
H.2. Floor is solid, non-slippery and non-reflective.	4.1750	Substantially Compliant	
I.1. Electrical lighting has been provided to increase accessibility and safety.	4.5250	Substantially Compliant	
I.2. Switches or controls are located at a height of 90cm above the ground and easy to use.	4.3500	Substantially Compliant	
J.1. Pathway is connected to the sanitary facilities; most habitual, direct and the shortest.	4.3500	Substantially Compliant	
J.2. Space outside or inside the toilet is wide enough to allow a person in a wheelchair to complete a full turn (Clear surface of 1.5 m x 1.5 m, clear surface must be provided either inside or outside the cabin).	3.3500	Partially Compliant	
J.3. Toilet seat at a height of 45-50cm.	3.4500	Partially Compliant	
J.4. Grab bar to facilitate the transfer (installed at a height of 80cm above the ground and strong enough to support body weight).	2.9250	Limitedly Compliant	
K.1. One CFS for every 100 families is provided.	3.8500	Partially Compliant	
K.2. Located near a clean toilet for boys and girls.	3.5250	Partially Compliant	
L.1. There is an available health station or clinic.	4.5500	Substantially Compliant	
L.2. The breastfeeding room or corner is easily accessible	4.1500	Substantially Compliant	

Items	Mean	Verbal Equivalent
A.1. The site and sidewalk are flat (minimal level changes for better mobility and ensure flat uniform surfaces with surface water drainage in place).	4.5750	Substantially Compliant
A.2. Accessible and clear from rubble and debris.	4.4000	Substantially Compliant
B.1. The pathways are accessible and cleared from obstacles.	4.2500	Substantially Compliant
B.2. The ground is firm (compacted material, concrete), non-slippery, without obstacle for the wheel, the foot, or the crane.	4.3750	Substantially Compliant
B.3. Pathways are identified so that people know where to find the route.	4.5250	Substantially Compliant

B.4. At least 120cm wide for a wheelchair to circulate.	3.0500	Partially Compliant	E.2. Wide enough (at least 800 mm) with space adjacent to the door to enable people who use wheelchairs to pull or push the door open.	3.4250	Partially Compliant
B.5. Protrusion hazards and/or overhead hazards above the path are located at the height of at least 2.20m above the ground.	4.4500	Substantially Compliant	E.3. With latch or handle that is easy to operate.	3.9500	Partially Compliant
B.6. Small steps or ground level changes are avoided.	4.0250	Substantially Compliant	E.4. With space beside the door to enable people to easily pull or push the door open.	4.4000	Substantially Compliant
B.7. Wheel guard prevents the wheelchair from tripping over and serves as a guide for blind users.	3.8750	Partially Compliant	E.5. Accessible and easy to open and close or people with disability.	3.9500	Partially Compliant
C.1. Entrance is at ground level, or it is equipped with a ramp or easy slope.	2.9750	Limitedly Compliant	E.6. Door thresholds are less than or equal 1.2cm.	3.5250	Partially Compliant
C.2. Clear of obstacles.	4.3250	Substantially Compliant	E.7. Door handles are located at a height of 90cm above the ground and should either be D-lever or vertical handles (easy to grab), a horizontal grab at a height of 80cm above the ground can be added to the doors to facilitate the closing).	4.0750	Substantially Compliant
C.3. Easy and intuitive to locate for everyone, including persons with a vision or cognitive disability.	4.3750	Substantially Compliant	E.8. Minimum height of the windows is 80cm.	4.1000	Substantially Compliant
C.4. Connected to an accessible roadway.	4.6750	Substantially Compliant	E.9. Windows are equipped with lever handles or similar system that easy to use.	3.0750	Partially Compliant
C.5. Has a clear path that has a smooth surface.	4.4000	Substantially Compliant	F.1. Ramps have a safe slope, not greater than 1:12 to prevent wheelchairs from tipping over backwards.	1.0000	Non-Compliant
C.6. Has curb ramps where sidewalks exist.	2.9000	Limitedly Compliant	F.2. Have a side edge or handrail to protect someone from wheeling off the edge.	1.0000	Non-Compliant
C.7. Openings are at least 80 cm wide, for a wheelchair to pass through (width of at least 90cm is more comfortable for wheelchair users and reduces hands injuries).	3.3750	Partially Compliant	F.3. At least 900mm wide.	1.0000	Non-Compliant
C.8. Entrances have contrasting color to make it easier for persons with visual impairment to identify them (the color of the doors are contrast with the wall. If the color of the doors does not contrast with the wall, door frames can be painted with a contrasting color).	3.8000	Partially Compliant	F.4. Have enough room at the top and bottom to provide a safe landing so wheelchairs can turn.	1.0000	Non-Compliant
D.1. The stairs are not an obstacle for blind users or persons with low visions.	2.9500	Limitedly Compliant	F.5. Slope should not exceed 5%, one landing area at the top and one landing area at the bottom: minimum of 1.40m x 1.40m.	1.0000	Non-Compliant
D.2. Equipped with handrails, color contrasting warning band (yellow paint) on step nosing, and step height of 15cm and step depth 30cm.	1.8000	Non-Compliant	G.1. Handrails are at a consistent height above each step (865-965 mm).	1.0000	Non-Compliant
E.1. Doors are easy to open with minimal resistance.	4.2250	Substantially Compliant	G.2. Above the surface of the ramp for the entire length of the stair or ramp.	1.0000	Non-Compliant
			G.3. Installed both on stairs and	1.0000	Non-

ramps at a height of 70cm and 90cm when the slope exceeds 5 percent.		Compliant
G.4. Easy to grab and has a diameter of 4cm.	1.0000	Non-Compliant
G.5. Solid enough to support bodyweight.	1.0000	Non-Compliant
H.1. Wide enough to allow a wheelchair user to circulate and complete a full turn (Wheelchair users need a clear surface of 1.50 m x 1.50 m to complete a full turn).	4.7750	Substantially Compliant
H.2. Floor is solid, non-slippery and non-reflective.	3.9500	Partially Compliant
I.1. Electrical lighting has been provided to increase accessibility and safety.	4.3750	Substantially Compliant
I.2. Switches or controls are located at a height of 90cm above the ground and easy to use.	4.3500	Substantially Compliant
J.1. Pathway is connected to the sanitary facilities; most habitual, direct and the shortest.	4.3250	Substantially Compliant
J.2. Space outside or inside the toilet is wide enough to allow a person in a wheelchair to complete a full turn (Clear surface of 1.5 m x 1.5 m, clear surface must be provided either inside or outside the cabin).	4.1250	Substantially Compliant
J.3. Toilet seat at a height of 45-50cm.	3.4750	Partially Compliant
J.4. Grab bar to facilitate the transfer (installed at a height of 80cm above the ground and strong enough to support body weight).	2.7250	Limitedly Compliant
K.1. One CFS for every 100 families is provided.	1.0000	Non-Compliant
K.2. Located near a clean toilet for boys and girls.	1.0000	Non-Compliant
L.1. There is an available health station or clinic.	4.7000	Substantially Compliant
L.2. The breastfeeding room or corner is easily accessible providing privacy, security, and supportive care.	3.8000	Partially Compliant

Table 13 illustrates the mean scores of Poblacion Multipurpose Covered Court. Like BukludningLugud and San Vicente Evacuation Center, most items exhibit substantial compliance with mean scores above 4. The site

and sidewalks boast a flat, accessible terrain, free from debris. Pathways are equally accessible, devoid of obstructions, with stable surfaces, clear markings from the main road, devoid of hazards, and featuring minimal changes in ground elevation. Entrances are unobstructed, easily discernible, and linked to accessible roadways. Doors are user-friendly, offering ample space inside for individuals with disabilities to maneuver, equipped with D-lever handles and windows positioned at a minimum height of 80 cm. Interior spaces allow wheelchair users to execute full turns, lighting is provided, and switches are positioned at a height exceeding 90 cm above the ground. Pathways leading to sanitary facilities are direct, with minimal distance to cover, and offer sufficient space for wheelchair maneuverability. Additionally, nearby stations are available for convenience.

Furthermore, items D2, F1-F5, G1-G5, and K1-K2 are deemed non-compliant. This underscores the necessity for improvements in the color contrast of warning bands on stair nosing. Additionally, the absence of ramps, handrails, and child-friendly spaces in this evacuation facility emphasizes the crucial need for their installation. Without these features, PWDs and children may encounter difficulties remaining within the facility. The absence of ramps and handrails restricts the mobility of PWDs, while the limited access to adequate spaces for learning and recreation poses challenges for children.

IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A. Summary of Findings

Table XIV
Summary of Means of the Evacuation Facilities for Every Item

Item	BukludningLugud	San Vicente Evacuation Center	Poblacion Multipurpose Covered Court
Site and Sidewalk	4.600	4.388	4.488
Pathways	4.046	4.318	4.079
Entrance	4.131	4.297	3.853
Stairs	N/A	3.563	2.375
Doors and Windows	4.192	3.747	3.858
Ramps	N/A	4.370	1.000

Handrails	1.205	4.265	1.000
Spaces Inside	4.313	4.438	4.363
Switches	4.425	4.438	4.363
Sanitary Facilities	3.650	3.519	3.662
Child-Friendly Space	1.000	3.688	1.000
Facilities Requirements for Health	2.300	4.350	4.250

The table above shows the summary of means for the items assessed by the developed assessment tool. The study evaluated evacuation facilities, revealing insights into their compliance with inclusivity guidelines. Notably, all evacuation facilities are substantially compliant on-site, including sidewalks, pathways, spaces inside, and switches.

Nevertheless, each facility still needs to improve its aspects to achieve inclusivity for vulnerable sectors. In Buklud Ning Lugud, handrails and child-friendly spaces are non-compliant. In San Vicente Evacuation Center, stairs, doors and windows, sanitary facilities, and child-friendly spaces are partially compliant. Ramps, handrails, and child-friendly spaces are non-compliant in Poblacion Multipurpose Covered Court.

These findings emphasize the significance of addressing identified deficiencies to enhance the overall inclusivity of evacuation facilities. Improvements in features like ramps and handrails are essential to ensuring safe evacuation for individuals with diverse needs. Moreover, attention to child-friendly spaces is crucial for accommodating vulnerable populations during emergencies.

While the assessment revealed partial compliance, it is evident that the sanitary facilities in relation to evacuation facilities are not adequately scaled to accommodate the number of evacuees. Aligning with the results of the feasibility study, proper sanitation, and privacy are only minimally accessible within the existing comfort rooms at evacuation facilities. Additionally, the sanitary facilities limit gender sensitivity as they are designed and treated as common comfort rooms for all individuals.

Furthermore, the San Vicente Evacuation Center demonstrates the highest level of compliance, with a general mean of 4.115 among the three evacuation facilities assessed. Except for the stairs, sanitary facilities, and child-friendly space, most items comply with the guidelines outlined in the assessment tool. This suggests that the San Vicente Evacuation Center can serve as a benchmark for other facilities within the Municipality of Santo Tomas, facilitating improvements in compliance and overall effectiveness. Moreover, the general mean scores of BukludningLugud and Poblacion Multipurpose Covered Court are 3.386 and 3.191, respectively.

B. Conclusions

Based on the feasibility study's findings, the assessment of the MDRRMO of Santo Tomas is reliable since features for inclusive evacuation facilities are limited to the evacuation facilities of Santo Tomas. The feasibility study has also revealed that evacuees from the municipality agreed that having an inclusive evacuation facility is important to cater to the diverse needs of all sectors. Therefore, it is concluded that the pilot test and the application of the assessment tool can be conducted in the said municipality.

The next part of the study is the development of the tool. This part is divided into two processes: validation and reliability test. After a series of validations from different professionals, the tool is considered valid. Moving forward to the reliability test, Cronbach's Alpha computed is .834, which has a reliability level of "Good." It is concluded that the developed tool is effective since it is proven to be valid and reliable.

Strengths and areas for improvement in the inclusivity of the evacuation facilities are highlighted in the study. While certain features meet or exceed inclusivity guidelines, critical deficiencies exist in others, particularly in ramps, handrails, and child-friendly spaces. It is important to address these shortcomings through targeted interventions to guarantee the safety and well-being of all individuals during emergencies. By prioritizing inclusivity in evacuation planning and infrastructure development, stakeholders can create environments that effectively accommodate the diverse needs of evacuees, thereby enhancing overall emergency preparedness and response efforts. In conclusion, the evacuation facilities in Santo Tomas, Pampanga, demonstrate compliance with inclusivity guidelines. However, further improvements are necessary to fully meet these guidelines and accommodate the diverse needs of all sectors.

C. Recommendations

Based on the findings and conclusions presented, the following recommendations are suggested:

1. As the results indicate, there are limited child-friendly spaces in evacuation centers, highlighting the need for their inclusion. These spaces accommodate the specific needs of children during emergencies, ensuring their safety, comfort, and psychological well-being.
2. Improved ramps and handrails are important to facilitate the movement of individuals using wheelchairs. Proper installation of ramps and handrails in evacuation facilities allows individuals with mobility challenges to move safely.
3. Stair construction should be improved to enhance safety and accessibility for all individuals, especially those with mobility challenges. Proper dimensions must be accurate, floors must be slip-resistant to

- prevent falls, and adequate handrails must be provided to avoid accidents.
- Future researchers should consider enhancing existing assessment tools with further guidelines or features. These enhancements will provide a more comprehensive evaluation of inclusive evacuation facilities. Specifically, it is recommended that they improve the guidelines for sanitary facilities and highlight gender sensitivity.
 - After the study, the results were forwarded to the Municipality of Santo Tomas, Pampanga, particularly the Municipal Disaster Risk Reduction and Management Office and the Municipal Local Government Operations Office. The results will help these offices assess the status of their evacuation facilities and create strategies to enhance inclusivity for vulnerable populations. The findings can provide insights for future planning, policymaking, and improvement initiatives to ensure all residents' safety and well-being during disasters.

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