DIMENSIONS OF CITIZENS' PARTICIPATION IN DISASTER RESPONSE IN DAVAO CITY, PHILIPPINES

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ABSTRACT

This study was conducted to determine the dimensions of participation among citizens of Davao City, Philippines in terms of disaster response. The study utilized data reduction process using exploratory factor analysis. In order to generate data, a total of 218 respondents were conveniently chosen to answer in the survey instrument with 63 items. The results of the study revealed that majority of the respondents are between 15-25 years old, majority are female, and are college students. Data reduction analysis revealed further that there are twelve dimensions of participation in disaster response among citizens in Davao City Philippines based on the Eigenvalues of not less than 0.4. These are investing on social capital, institutionalized enabling environment, integrative and holistic formation on disaster response, practical and technical capability building, opportunity for nationalism, material provision as a source for motivation, effective information and education campaign, readiness of logistical support, values formation, availability of disaster response equipment, personal agenda to participate, and institutional building for disaster response. If these dimensions are considered in policy making, more and more citizens will be greatly motivated to participate in the disaster response.

Keywords: Dimensions, citizen's participation, disaster response, exploratory factor analysis, Davao City, Philippines.

INTRODUCTION

Citizens' participation in disaster response has been proven to have substantially augmented the burdensome tasks of responders during calamities. According to Pande (2006), considering the vast potential of community and putting its participation into practice in different stages of disaster management will certainly help the disaster managers to make a safer society. Hence, disaster management is not merely a discipline that should be tackled in classrooms but rather, a habit that should be practiced by every citizen. In the words of Pande (2006), participation in practice is far more complex than in theory. Participation of each and every component of society in practicing disaster management is the key to success.

However, in the Philippines, there is no existing framework that will guide citizens on how to participate in situations that need wide response during and after natural or man-induced disasters. According to Samaddar, et al. (2015), public participation in disaster management is acknowledged by practitioners yet its actualization largely remains a dream. There have been claims in favor of citizens' participation but these remain anecdotal without empirical substance. Hence, this study is conducted.

LITERATURE REVIEW

As natural disasters become more and more frequent, communities expect more from their local, state and federal governments. Planners, emergency managers, policy makers and government officials in general will benefit from improving their relationships with the communities they are charged to serve as part of their position (Sperry 2013). The general public on the other hand, expects all three levels of government (local, state, and federal) as well as nonprofit aid agencies and other nongovernmental agencies (NGOs) to provide quick and complete response to disasters. Governments and NGOs have a finite capability to respond to disasters, a fact that is lost on members of the general public. This "gap" between the public's expectations regarding disaster response and the actual disaster response capabilities is known as the expectation gap (Kayes, 2006).

Improving citizen participation in emergency planning is anticipated to reduce the expectation gap. The more engaged people are the more they learn about how to prepare themselves for disasters. Once people realize that they must look after themselves and be prepared, they will have a greater understanding of the limitations of emergency response. Schoch-Spana et al, (2006) suggest that despite the negative influence on expectation gap, limited citizen participation is the norm. Other research points out the importance of not only working with, but partnering with the public during a crisis, and that it is the responsibility of all organizations involved to ensure the public gets accurate and complete information (Seeger, 2006).

The study of Davidson (2006) proved that there existed variation in community participation among different countries as stakeholders in the projects. Some of the communities were informed, consulted but were not empowered; in essence have no power to affect the deliverables of the project. The International Association of Public Participation (2007) developed the following guidelines on how the community can participate and powered and be empowered.

According to ADPC (2004), the community will act immediately in an effective and efficient manner when trained and recognized. Their performance goes beyond traditional disaster management practices of preparedness and response to mitigation and recovery (San Francisco, 2016) when masterly dealing with stressors (disasters). Community empowerment has great benefits for Emergency Management, government agencies, private and non-profit sector organizations when their budgets are impacted by economic constraints (FEMA, 2011).

In Philippines, after the experience of successive "mega-disasters" within the last decade and the positive case stories of community mobilization in disaster preparedness and mitigation, there have been more communities, people's organizations and NGOs, government agencies and local government units which have taken on community based disaster management. The Philippine National Red Cross has implemented its Integrated Community Disaster Planning Program since 1994. Other agencies such as World Vision, Caritas-Manila and the Philippine Relief and Development Services have integrated Community Based Disaster Management (CBDM) into their existing emergency services. In the government sector, the Department of Social Welfare and Development through its Bureau Emergency Assistance has promoted Family and Community Disaster Preparedness to local government units. The municipality of Guagua and the province of Albay in the environs of Mt. Pinatubo in Central Luzon and Mayon Volcano in Southern Luzon respectively, are among local government units which are recognized to excel in the local and community level disaster management (Victoria 2003).

Davao City is a highly urbanized city located in the Southern part of the Philippines; its population is estimated at 1.6 million. It maintains the Davao Central 911, a rescue and emergency unit. Davao used to be a typhoon-free city until it experienced a signal number 1 when Southern Philippines was hit by Typhoon Pablo (Tamayo 2016).

One thing that the people of Davao are very sure of is the capacity of the city government towards disaster. Individuals vouch for the quick response to disaster (83%) of the government personnel. The public is impressed and certain with the immediate and effective dispatch of the local government to protect its citizens (Col, 2007). The local government, as must be seen by the public, should be reliable in delivering effective emergency response. There could be no other government agency more effective and logical in any emergency management (Waugh, 1994) than the local government.

The flexibility and effectiveness of the incident command system for disaster have its positive and negative impacts. The public know of the availability of resources, human and capital, ready for disaster. On the other hand, the structure of the incident system caused overburden to the officials of the barangays (villages) with the village chair imitating the role of the Mayor in the incident command. However, the village chair only acts as conduit of information for rescue operation which decision is done by the Mayor. In addition, the village chair acts as guide for rescue operation units given the knowledge of the community. On the other hand, the enduring burden to the village chief is the ability to bring together, as a community, disaster preparation. The community-based disaster management is beset by biases of the older and educated members of the community. These are the individuals who are standing down as they rely on their memory that no disaster of tremendous effect that occurred in the community. This further exacerbates the problem because older individuals have special needs which information are needed for the crafting of disaster plan; without the older and educated individuals participating in the community, preparation as a whole won't be inclusive (Tamayo 2016).

Victoria (2003) suggests that whether a disaster is major or minor, of national or local proportion, it is the people at the community or village level who suffer most its adverse effects. They use coping and survival strategies to face and respond to the situation long before outside help from NGOs or the government arrives. They are interested to protect themselves from the damage and harm through community based disaster preparedness and mitigation.

Further, there is a need for a more bottom-up decentralized approach which entails the participation of all stakeholders. Risk reduction can be enhanced through a more organized, proactive and participatory type of coordination amongst all agencies concerning disaster management (World Bank East Asia and Pacific Region Rural Development, & Development, 2005). According to Falconi (2015), there is an inner motivation of people to participate in disaster response. This motivation is further assisted by external factors such as response centers and well-formed collaboration with other responders. With this, personal agenda becomes the main drive for citizens to actively take part in disaster response activities. Disaster response equipment such as early warning systems, provides great efficiency in terms of quickly informing stakeholders of the hazard occurring at a certain area (Public Health England, 2014). Recognizing this need and by supplying disaster response equipment, the citizens will be encouraged to participate during disaster response.

On the other hand, instilling the values and principles of disaster risk reduction will help develop disaster preparedness (Consortium for Disaster Education Indonesia, (2011). Good

interpersonal relationships in the community also influence people to help one another (Espina, E., & Teng-calleja, M., 2015). Hence, the formation of values is a significant factor that could greatly affect how people respond during and after a disaster. The preparations set by the government such as conducting drills, workshops and basic training will help the citizens to be ready in the event of a disaster. In addition, empowering the citizens to support the government through voluntary works will increase their training and supportive capabilities (Stikova, E., 2016). Educating the public as well through information education campaign is done as a means of reducing risk and vulnerabilities and builds up the resilience of communities. If there is an effective information dissemination then the citizens will become more aware on what to do when a disaster occurs (Manuta, J., Eugenio, E., & Macandog, P. B., 2018).

METHODOLOGY

Research Design. Quantitative research using data reduction. A quantitative research design using exploratory factor analysis (EFA) was applied in the study. This design has the capacity to extract the possible dimension of disaster responsiveness among communities of coastal barangays of Davao City. Exploratory Factor Analysis (EFA) was used to identify the dimension of disaster responsiveness among communities of coastal barangays of Davao City. Likewise, the Keiser Meyer Olkin measure of sampling adequacy was used to test the magnitude of partial correlations among variables.

Source of Data. The study made used of primary data which were gathered from 218 selected citizens in Davao City through survey questionnaire through non-probabilistic quota cum convenience sampling.

Statistical Treatment. The following are the statistical tools adopted on the presentation and analysis of the findings: Frequency counts and percentage were used to describe the respondent's socio demographic characteristics while data reduction analysis was used to determine the dimensions of citizens' participation in disaster response using Exploratory Factor Analysis.

Research Instrument. The survey questionnaire was divided into two parts namely; socio-demographic profiling of the respondents and the set of 63 items which were rated by the respondents. The rating of the respondents is based on the Likert-like scaling as follows:

Scale	Interval	Level	Interpretation
5	4.50-5.00	**Strongly Agree**	If the item stated is always observed and practiced
4	3.50-4.49	**Moderately Agree**	If the item stated is often observed and practiced
3	2.50-3.49	**Agree**	If the item stated is sometimes observed and practiced
2	1.50-2.49	**Disagree**	If the item stated is seldom observed and practiced
1	1.00-1.49	**Strongly disagree**	If the item stated is never observed and practiced

Reliability Test of Instrument. The survey instrument was subjected to reliability test using Cronbach Alpha. The test showed that survey instrument was 97 % reliable. Hence, the result allowed to researchers to proceed with the data collection.

DISCUSSION

Socio-demographic Profile

The socio-demographic profile is composed of age, sex, educational attainment, and employment status

Age. As shown in the table, majority of the respondents are between 15-25 years old which is 74.31 per cent or 162 out of the total respondents. It is followed by 33 respondents between the

age of 26-35 years old or 15.13 per cent. Meanwhile, 9 respondents or 4.58 per cent is between the age range of 36-45 while 4.12 per cent are between 46-55 years old and the least age of the respondents is between 56-71 years old which is 1.8 per cent or 4 respondents only.

Table 1. Distribution of respondents according to age

Age Range (year)	Number of Respondents	Percentage
15-25	162	74.31 %
26-35	33	15.13 %
36-45	10	4.58 %
46-55	9	4.12 %
56-71	4	1.83 %
Total	**218**	**100 %**

Sex. As shown in the table, majority of the respondents are female which is 125 or 57.34 % of the respondents while the male is composed of 93 respondents only 42.66 % of the total respondents.

Table 2. Distribution of respondents according to sex

Sex	Number of Respondents	Percentage
Male	93	42.66 %
Female	125	57.34 %
Total	**218**	**100 %**

Educational Attainment. As shown in the table, most of the respondents have attained college level which is 49.08 % or 107 of the respondents. It is being followed by 82 respondents who are college graduates or 37.61 %. The lowest number on the other hand is represented by 2 elementary level respondents or 0.91% of the total respondents.

Table 3. Distribution of respondents according to educational attainment

Educ. Attainment	Number of Respondents	Percentage
Elementary Level	2	0.91 %
HS Graduate	5	2.29 %
HS Level	5	2.29 %
College Graduate	82	37.61 %
College Level	107	49.08 %
Post Graduate	17	7.79 %
Total	**218**	**100 %**

Employment Status. As shown in the table, majority of the respondents are unemployed or students which is 53.21 % or 116 out of the 218 respondents. It is being followed by private or NGO employees which is 23.39 & or 51 respondents. On the other hand, the least number of respondents is being represented by 3 pensioners or 1.37 %.

Table 4. Distribution of Respondents according to employment status

Employment Status	Number of Respondents	Percentage
Unemployed/Students	116	53.21 %
Government Employee	32	14.67 %
Private/NGO employee	51	23.39 %
Self-employed	16	7.33 %
Pensioner	3	1.37 %
Total	**218**	**100 %**

Dimensions of Citizens' Participation in Disaster Response
KMO and Bartlett's Test. Table 5 shows the Keiser Meyer Olkin Measure of Sampling Adequacy and Bartlett's test of sphericity. The Keiser Meyer Olkin measure of .905 implies that the samples are in high correlations and it allows factor analysis that fits for data. As shown,

the Bartlett's test of Sphericity yields a value of 9851.637 and a level of significance smaller than .001. This signifies that it allows the data to proceed factoring the underlying dimension of citizens' participation in disaster response. Moreover, the Bartlett's test of Sphericity implies to reject the null hypothesis and there are dimension of citizens' participation in disaster response in Davao City.

Table 5. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.905
Bartlett's Test of Sphericity	Approx. Chi-Square	9851.637
	Df	1953
	Sig.	.000

Total Variance Explained. Presented in Table 6 are the number of dimensions that were extracted using the Exploratory Factor Analysis. The initial Eigen values were associated with specified dimensions, the percentage of total variance and the cumulative percentage of each dimension. Using the criterion factors, 13 components or dimensions were obtained. The initial Eigen value of 1 or greater are the 13 dimensions that define the citizens' participation in disaster response.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	22.220	35.270	35.270	22.220	35.270	35.270	6.088	9.664	9.664
2	4.469	7.093	42.363	4.469	7.093	42.363	5.108	8.108	17.772
3	3.081	4.890	47.253	3.081	4.890	47.253	4.385	6.961	24.732
4	2.138	3.393	50.646	2.138	3.393	50.646	4.266	6.772	31.504
5	1.775	2.818	53.464	1.775	2.818	53.464	4.240	6.731	38.235
6	1.591	2.525	55.989	1.591	2.525	55.989	4.175	6.628	44.863
7	1.482	2.353	58.342	1.482	2.353	58.342	3.434	5.451	50.314
8	1.406	2.231	60.573	1.406	2.231	60.573	2.808	4.457	54.771
9	1.268	2.013	62.586	1.268	2.013	62.586	2.248	3.569	58.339
10	1.197	1.900	64.486	1.197	1.900	64.486	2.203	3.497	61.836
11	1.159	1.840	66.327	1.159	1.840	66.327	2.126	3.375	65.211
12	1.117	1.773	68.100	1.117	1.773	68.100	1.517	2.408	67.619
13	1.087	1.726	69.826	1.087	1.726	69.826	1.390	2.207	69.826

Extraction Method: Principal Component Analysis.

Rotated Component Matrix with 53 attributes. As presented, there are 63 items categorized into 12 dimensions. However, there is one (1) item that was not included in the categorization of 12 dimensions because one dimension consists only of one item. With that, only 62 items that are considered in the categorization into twelve (12) dimensions. It is based on the standard rule of exploratory factor analysis (EFA) in which the variables with Eigen values less that .5 was not included in the factoring.

Rotated Component Matrix with group attributes. The sixty-two (62) items in the questionnaire were subjected to factor analysis component with varimax rotation or rotated component matrix, compared this with unrotated solution. Before rotation, most variables loaded highly onto the first factor and the remaining factors didn't really get look in. However, the rotation of the factor structure has clarified things considerably: there are twelve factors and variables load very highly onto only one factor (with exception of one question). The suppression of loadings less than 0.4 and ordering variables by loading size also makes interpretation considerably easier (Field, 2005). Based on the technique, there are twelve dimensions have been identified with their respective indicators. These dimensions are presented in tables and these correspond the citizens' participation in disaster response.

Dimensions of Citizens' participation in disaster response
The following are the dimensions of citizens' participation in disaster response in Davao City:

Dimension 1. Investing on social capital. As indicated in Table 7, exploratory factor analysis revealed the first dimension with the following indicators: If helping others during times of disasters give me a sense of heroism with the load score of .513; If helping others during times of disasters give me a sense of heroism with the load score of .513; If responding to disasters give me an opportunity to develop confidence and sense of nationalism with the load score of .433; If I like to experience adventure so I can be prepared in life with the load score of .607; If I can make new friends during disaster response with the load score of .717; If women are highly encouraged to participate in disaster response with the load score of .592; If helping others during disaster response will give me an opportunity to develop acquaintances with the load score of .602; If helping others will guarantee me that others will also help me in the future with the load score of .715; If being a disaster responder gives me a good reputation with the load score of .772; If I am hailed as a hero when I help others during disasters with the load score of .761 and If my family and friends will be proud of me when I participate in disaster response with the load score of .698.

Table 3. Factor structured using Rotated Component Matrix for Dimension 1

Item Number	Items	Factor Score	Construct
43	If helping others during times of disasters give me a sense of heroism	.513	**Investing on Social Capital**
50	If Responding to disasters give me an opportunity to develop confidence and sense of nationalism.	.433	
51	If I like to experience adventure so I can be prepared in life	.607	
52	If I can make new friends during disaster response	.717	
53	If women are highly encouraged to participate in disaster response	.592	
55	If helping others during disaster response will give me an opportunity to develop acquaintances	.602	
56	If helping others will guarantee me that others will also help me in the future	.715	
57	If being a disaster responder gives me a good reputation	.772	
58	If I am hailed as a hero when I help others during disasters	.761	
59	If my family and friends will be proud of me when I participate in disaster response.	.698	

Dimension 2. Institutionalized enabling environment. As indicated in Table 8, exploratory factor analysis revealed the second dimension with the following indicators: If the City Disaster Risk Reduction Council initiates the organizing of disaster responders in the city with the load score of .506; If it is easy to respond to disasters when there are organized groups of volunteers with the load score of .709; If I can always ask for assistance when there are organized groups of responders with the load score of .643; If the city council has a policy on the role of citizens to participate in disaster response with the load score of .605; If the city disaster and risk reduction council is mandated to form policies that encourage participation of citizens in disaster response with the load score of .700; If the city council respects the laws on citizens participation with the load score of .616; If the opinion of other stakeholders are being considered in the policy making for disaster response with the load score of .521 and If the city council is mandated by law to enact ordinances that encourage citizens participation in disaster response with the load score of .511.

Table 8. Factor structured using Rotated Component Matrix for Dimension 2

Item Number	Items	Factor Score	Construct
34	If the City Disaster Risk Reduction Council initiates the organizing of disaster responders in the city	.506	**Institutionalized Enabling Environment**
35	If it is easy to respond to disasters when there are organized groups of volunteers	.709	
36	If I can always ask for assistance when there are organized groups of responders	.643	
37	If the city council has a policy on the role of citizens to participate in disaster response.	.605	
38	If the city disaster and risk reduction council is mandated to form policies that encourage participation of citizens in disaster response	.700	
39	If the city council respects the laws on citizens participation	.616	
40	If the opinion of other stakeholders are being considered in the policy making for disaster response	.521	
41	If the city council is mandated by law to enact ordinances that encourage citizens participation in disaster response	.511	

Dimension 3. Integrative and holistic formation on disaster response. As indicated in Table 9, exploratory factor analysis revealed the first dimension with the following indicators: If disaster response is being taught in the school with the load score of .603; If emergency preparedness is being integrated in our subjects at school with the load score of .699; If I learned a lot about disaster response at school with the load score of .702; If at school, students are trained how to respond to both natural and man-made disasters with the load score of .638; If teachers themselves are capable of responding to disasters with the load score of .636 and If disaster response is integrated in the curriculum with the load score of .577.

Table 9. Factor structured using Rotated Component Matrix for Dimension 3

Item Number	Items	Factor Score	Construct
21	If disaster response is being taught in the school	.603	**Integrative and Holistic Formation on Disaster Response**
22	If emergency preparedness is being integrated in our subjects at school	.699	
23	If I learned a lot about disaster response at school	.702	
24	If at school, students are trained how to respond to both natural and man-made disasters	.638	
25	If teachers themselves are capable of responding to disasters	.636	
26	If disaster response is integrated in the curriculum	.577	

Dimension 4. Practical and technical capability building. As indicated in Table 10, exploratory factor analysis revealed the first dimension with the following indicators: If I know how to use the emergency response equipment with the load score of .715; If I already have the experience in disaster response with the load score of .833; If I had a formal training in disaster response with the load score of .793; If I am trained to respond to disasters in our school with the load score of .649 and If I am trained how to use the disaster response equipment and facilities with the load score of .446.

Table 10. Factor structured using Rotated Component Matrix for Dimension 4

Item Number	Items	Factor Score	Construct
5	If I know how to use the emergency response equipment	.715	**Practical and Technical Capability Building**
6	If I already have the experience in disaster response	.833	
7	If I had a formal training in disaster response	.793	
8	If I am trained to respond to disasters in our school	.649	
20	If I am trained how to use the disaster response equipment and facilities	.446	

Dimension 5. Opportunity for nationalism. As indicated in Table 11, exploratory factor analysis revealed the first dimension with the following indicators: If helping others through disaster response is a very noble duty with the load score of .642; If I like helping those in need especially during disasters with the load score of .742; If I desire to help the community where I live in with the load score of .635; If my community needs my help during disasters with the load score of .610; If my community is important to me so it is my duty to help them in times of disasters with the load score of .584; If I want to gain experience as a disaster responder with the load score of .442 and If I am raised to be concerned and helpful to others during disasters with the load score of .460.

Table 11. Factor structured using Rotated Component Matrix for Dimension 5

Item Number	Items	Factor Score	Construct
44	If helping others through disaster response is a very noble duty	.642	**Opportunity for Nationalism**
45	If I like helping those in need especially during disasters	.742	
46	If I desire to help the community where I live in.	.635	
47	If my community needs my help during disasters	.610	
48	If my community is important to me so it is my duty to help them in times of disasters	.584	
49	If I want to gain experience as a disaster responder	.442	
61	If I am raised to be concerned and helpful to others during disasters	.460	

Dimension 6. Material provision as a source of motivation. As indicated in Table 12, exploratory factor analysis revealed the first dimension with the following indicators: If there are monetary incentives as disaster response volunteer with the load score of .685; If the city council provides allowance for citizens who volunteer in disaster response with the load score of .780; If as a volunteer citizen, I am given freebies and bonuses by the city council with the load score of .811; If I am provided with food and clothing allowances as a responder with the load score of .750 and If the city council allocated budget for monetary incentives for citizen participation in disaster response with the load score of .691.

Table 12. Factor structured using Rotated Component Matrix for Dimension 6

Item Number	Items	Factor Score	Construct
27	If there are monetary incentives as disaster response volunteer	.685	**Material Provision as a source of Motivation**
28	If the city council provides allowance for citizens who volunteer in disaster response	.780	
29	If as a volunteer citizen, I am given freebies and bonuses by the city council	.811	
30	If I am provided with food and clothing allowances as a responder	.750	
31	If the city council allocated budget for monetary incentives for citizen participation in disaster response	.691	

Dimension 7. Effective information and education campaign. As indicated in Table 13, exploratory factor analysis revealed the first dimension with the following indicators: If information about disaster response are being broadcasted in TV and radio with the load score of .617; If there are posters and print ads that disseminated the information about disaster response with the load score of .723; If the barangay officials encourage people to participate in disaster response with the load score of .663 and If the city council orders the citizen to be disaster ready and responsive with the load score of .553.

Table 13. Factor structured using Rotated Component Matrix for Dimension 7

Item Number	Items	Factor Score	Construct
9	If information about disaster response are being broadcasted in TV and radio	.617	**Effective Information and Education Campaign**
10	If there are posters and print ads that disseminated the information about disaster response	.723	
11	If the barangay officials encourage people to participate in disaster response	.663	
12	If the city council orders the citizen to be disaster ready and responsive	.553	

Dimension 8. Readiness of logistical support. As indicated in Table 14, exploratory factor analysis revealed the first dimension with the following indicators: If trainings are provided by the Disaster Risk Reduction Council with the load score of .703; If I am already capable of responding to disasters with the load score of .499; If response centers are open 24 hours with the load score of .528 and If response centers welcome volunteers to be part of the response team with the load score of .542.

Table 14. Factor structured using Rotated Component Matrix for Dimension 8

Item Number	Items	Factor Score	Construct
1	If trainings are provided by the Disaster Risk Reduction Council	.703	**Readiness of Logistical Support**
2	If I am already capable of responding to disasters	.499	
15	If response centers are open 24 hours	.528	
16	If response centers welcome volunteers to be part of the response team	.542	

Dimension 9. Values formation. As indicated in Table 15, exploratory factor analysis revealed the first dimension with the following indicators: If helping others is a value in our family with the load score of .556; If I value life so I help as much as I could during disasters with the

loading's .603 and If responding to the needs of others during disasters is a virtue that everyone should practice with the load score of .607.

Table 15. Factor structured using Rotated Component Matrix for Dimension 9

Item Number	Items	Factor Score	Construct
60	If helping others is a value in our family	.556	**Values formation**
62	If I value life so I help as much as I could during disasters	.603	
63	If responding to the needs of others during disasters is a virtue that everyone should practice	.607	

Dimension 10. Availability of disaster response equipment. As indicated in Table 16, exploratory factor analysis revealed the first dimension with the following indicators: If there are available equipment and facilities to respond to disasters with the load score of .544; If emergency response equipment are high-tech and state of the art with the load score of .629 and If the city council has enough budget to purchase emergency response equipment with the load score of .628.

Table 16. Factor structured using Rotated Component Matrix for Dimension 10

Item Number	Items	Factor Score	Construct
17	If there are available equipment and facilities to respond to disasters	.544	**Availability of Disaster Response Equipment**
18	If emergency response equipment are high-tech and state of the art	.629	
19	If the city council has enough budget to purchase emergency response equipment	.628	

Dimension 11. Personal agenda to participate. As indicated in Table 17, exploratory factor analysis revealed the first dimension with the following indicators: If I am available to respond to disasters all the time with the loading's .596; If response centers are visible in many areas with the load score of .479 and If I can easily collaborate with other responders with the load score of .471.

Table 17. Factor structured using Rotated Component Matrix for Dimension 11

Item Number	Items	Factor Score	Construct
13	If I am available to respond to disasters all the time	.596	**Personal Agenda to Participate**
14	If response centers are visible in many areas	.479	
54	If I can easily collaborate with other responders	.471	

Dimension 12. Institutional building for disaster response. As indicated in Table 18, exploratory factor analysis revealed the first dimension with the following indicators: If there are associations for citizens who participate in disaster response with the load score of .453 and If the city council acknowledges the need to organize groups of disaster responders with the load score of .421.

Table 18. Factor structured using Rotated Component Matrix for Dimension 12

Item Number	Items	Factor Score	Construct
32	If there are associations for citizens who participate in disaster response	.453	**Institutional Building for Disaster response**
33	If the city council acknowledges the need to organize groups of disaster responders	.421	

CONCLUSION

The study concluded that there are twelve identified dimensions of citizens' participation in disaster response. These dimensions serve as principles that should guide policy makers and disaster managers to craft participatory-oriented policies in order to attract citizens to involve themselves in any situation that require immediate response. If these are addressed, the communities will become resilient and prepared to respond in any disaster may it be human-induced or natural that could take place in their communities.

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