

## **EMERGENCY MANAGEMENT FACILITIES IN RETAIL OUTLETS AND DEMAND FOR SAFE SHOPPING**

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Abstract---This study was conducted to know about the presence of emergency management facilities in a retail outlet and the extent of consumer knowledge about the same, when they decide enter that outlet. It was done in the retail outlets functioning in two southern districts of Kerala namely Trivandrum and Kollam. Kerala is a long, narrow strip of land in the southern tip of India with the Arabian Sea as its western border. The total land area of the state is 38,863 Km<sup>2</sup>. It also has a coast line of 570 km. The state disaster management authority shows that, 14.5% of the state is prone to floods and 14.4% to landslides. It is also prone to lightning attacks, tunnel erosions and soil piping which result land subsidence, all of which pointing to the fact that Kerala is a multi-hazard prone state. The state has the highest population density in the country, according to 2011 census, i.e., 860 people/km<sup>2</sup>. It also boasts of a high literacy rate and a high standard of living as compared to other states. The last hundred years has seen a shift in the profile of its population from an agriculture based society to a highly urbanized consumerist group. This is evident from the data which shows that there is an increase in the total number of retail shops between 2004 and 2015 from 2, 31,046 in 2004 to 2, 87,598. The high literacy rate of the state coupled with a higher standard of living makes the retail business well organized and stand at par with the international retail fraternity. The Kerala shops and establishment commercial fund claims that almost 50 malls have come up in the state between 2016 and 2019. The floods that affected the state in 2018 and 2019 have proved the extent of damage a disaster can cause both to people and property. The data used for this research was collected six months prior to the 2018 floods and focused on knowing how the demand for safe shopping is influenced by the emergency management facilities in a retail outlet. The analysis revealed that the element of safe shopping is often overlooked by the people inside a retail outlet and the emergency management facilities matter little when they decide on where to shop.

Keywords---Emergency, New Generation Retail Outlets

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## I. Introduction

Kerala has frequently witnessed the consequences of both natural and manmade wrongs and is a multi-hazard prone state. The disasters and their nature both of great significance to the state. There had been a rapid socio-economic transformation in the state in the last 80 years. The people had turned away from being an agrarian society to a consumerist society. Majority of this dense population is now urbanized with the highest literacy rate in the country, a high standard of living and a health status often claimed to be at par with those of Scandinavian countries.

Kerala has a coast line of 570 km in its western front with the Arabian Sea. The high population pressure along the coastal lines had forced some to migrate to the Western Ghats. (George and Chattopadhyay, 2001). There had been a population growth of 306% in the coastal lines, and a 134.6% growth in the highlands, foot hills and uplands together. (Nair et al, 1997). This population, with a density of about 819 people/km<sup>2</sup> (Census of India, 2011) are being exposed to a wide range of multiple hazards.

A report published by Kerala State Disaster Management Authority shows that the state is prone to lightning attacks (mostly in the months of April, May, October and November) floods, landslides, erosions, monsoon storms, sea level rises, tunnel erosions and soil piping (causing land subsidence), etc.

With a population density of 860 people per kilometer square (Census, 2011), a high density road network, with narrow roads contribute a lot to increase the vulnerability of this population to disasters.

The beginning of this century has seen the advent of organized form of retailing in the state. Retail outlets opened in enclosed, air-conditioned, illuminated environments with lucrative displays and self-service options. For many other parts of India this format may not be a new one. But for the consumerist market of Kerala this was new generation retailing. Shopping bazars which sprang up during this time has become more of a holiday hangout for them than for purchase. The crowd which used to

envelope festival grounds, picnic spots and parks have since been shifted to department stores, super markets and malls. Consequently reports of minor retail accidents have been coming up time and again and the retail sector in Kerala is one place where little concern is shown for emergency management.

## **II. Background of the study**

- There had been many reports of retail accidents happening around the world. In India had been coming in mostly from the metros and occasionally from other regions. Minor retail accidents are being reported from Kerala also.
- The hazard profile published by the Kerala State Emergency Management Authority presents it as a multi-hazard prone state.
- A minimum of two fire accidents in commercial buildings are reported every year.
- There had been a lot of retail losses due to flood.
- Most of the retail outlets are places where the crowd comes in for holidaying more than purchasing.
- The customers are either unaware or are unconcerned about the dangers that can happen if a disaster strikes and safe shopping is not a priority at all.

## **III. Objective**

The retail industry of Kerala is growing and has a very promising road ahead. But Kerala is a multi-hazard prone state and it is necessary to study whether the outlets where the people are choosing to shop are safe and how much they know about the safety measures required/present.

## **IV. Methodology.**

### **4.1. Scope.**

The paper is based on the research conducted in two southern districts of Kerala namely Trivandrum and Kollam. The new generation retail outlets functioning in the municipal corporation area were selected for the study. The data included published information from newspapers, magazines, the internet, academic journals, books and information from government manuals of disaster management. Primary data was collected using the survey

method from both the retailers and customers. The tool used for the survey was interview schedule. A sample survey was done in ten retail outlets and thirty customers in and around Trivandrum. The shops which are comparatively new, with an enclosed, air-conditioned interior, offering the self-service facility for the customers were taken for the research. The hypothesis was based on the assumption that the customers are not concerned about the need for safe shopping and do not know the relevance of emergency management facilities in providing the same. For the purpose of data collection the following information was needed.

## **4.2 Data Description**

Data was collected about the type of area where the study is done, the gender of the respondents, age, education occupation location and annual income of the respondents. It also covered the different aspects of the retail outlets such as the area where the outlet is functioning, the type of outlet, nature of the neighbourhood and surrounding area, whether there are any natural or man-made features in the neighbourhood and details about the building in which the outlet is functioning

### **4.2.2 Descriptive Analysis of the sample retail outlets.**

The profile of the respondents and the analysis is presented in Table No. 4.1

The socio-demographic profile of the retail outlets and the percentage analysis based on the sample collected is presented in Table No. 4.2.

According to Table No. 4.1 all the respondents were from the municipal corporation area. They were either residents of that area or came there exclusively for shopping. 72.81% (233no.s) of the respondents were female. Majority of the shoppers were female. 99 respondents (30.94%) were of the age group between 40 and 50, whereas 88 respondents (27.5%) were of the age group between 30 and 40. 17.18% (55 no.s) were between the ages of 20 and 30. So it can be seen that majority of people who spent time for shopping are women of the age groups between 20 and 50.

Regarding the educational qualification of the people majority of them (44.38% or 142no.s) were post graduates. 24.06% (77 no.s) were graduates and 11.56% (37 no.s) were having a

professional degree. 20% of the respondents were either 12 qualified or below that. So it can be seen that majority of the shoppers of Trivandrum and Kollam are well educated.

41.87% (134 no's) of the respondents are working in the private sectors followed by 24.06% (77 no.s) who are self-employed. 23.44% (75 no.s) of the respondents are government staff. About 5% are retired people and another 5% of the respondents are students. 2 people were house wives. So about 89.37% of the respondents were earning people who had some disposable income for shopping. The table further gives information about the annual income of the respondents. 32.50% (104 no.s) earn between Rs 100,000/- and Rs 200,000/- annually. Majority of the respondents (32.81% (105 no.s) earn between Rs 200,000/- and Rs 400,000/- . 24.69% earn more than Rs 400,000/- a year. So the shoppers were women who are employed and earning atleast Rs 100,000/- per annum.

Regarding the location of the respondents, 36.88% (118 no.s) were urban dwellers. 32.81% (105 no.s) were from rural areas who had come to the city for shopping and 30.31% (97 no.s) were from the immediate outskirts of the city.

Table No. 4.2 give details about the profile of the retail outlets. All the outlets were functioning in the municipal corporation areas of Trivandrum and Kollam. Majority of the outlets were supermarkets (40.63% or 13 no.s) followed by specialty stores (25% or 8 no.s). 15.63% (5 no.s) of the outlets were hypermarkets and 12.5% (4 no.s) were co-operative stores. It can be inferred that majority of the outlets included in the survey were branded new generation outlets.

40.625 of the retail outlets (13 no.s) were functioning in marketcenters or inside shopping centers. 6.25% of the outlets were in commercial or office areas and 53.13% of the outlets were either on areas outside the main business hub, an independent freeholding land in the outskirts or in the highway in the route to some important destination like the airport.

None of the retail outlets in Trivandrum and Kollam are in a hilly or mountainous area. 25% (8 no.s are in marshy land, 18.74% (6 no.s) are in low lying areas and 9.38% or 3 outlets complained that there is risk of vandalism in their location. 34.37% (11 no.s) of the outlets have a river in their vicinity and 28.12% (9 no.s) of the outlets are near lake. 9.38% (3 no.s) are near to the ocean.

Majority of the outlets (68.75% /22 no.s) are functioning in independent building while 31.25% (10 no.s) of the outlets are functioning as part of another building.

Table No.4. 1. Profile of the respondents

Profile of the respondents	Particulars	Trivandrum	Kollam	Total	
		Frequency	Frequency	Frequency	Percentage
Area	Municipal Corporation	170	150	320	100.00%
	<b>Total</b>	<b>170</b>	<b>150</b>	<b>320</b>	<b>100.00%</b>
Gender	Male	34	52	86	26.88%
	Female	136	97	233	<b>72.81%</b>
	No response	0	1	1	0.31%
	<b>Total</b>	<b>170</b>	<b>150</b>	<b>320</b>	<b>100.00%</b>
Age	< 10	0	0	0	0.00%
	10-20	16	8	24	7.50%
	20-30	23	32	55	17.18%
	30-40	41	47	88	27.50%
	40-50	66	33	99	<b>30.94%</b>
	50-60	6	21	27	8.44%
	60-70	18	8	26	8.13%
	No response	0	1	1	0.31%
	<b>Total</b>	<b>170</b>	<b>150</b>	<b>320</b>	<b>100.00%</b>
Education	< SSLC	0	9	9	2.81%
	SSLC	7	15	22	6.88%
	12TH	14	19	33	10.31%
	DEGREE	33	44	77	24.06%
	Post-Graduation	99	43	142	<b>44.38%</b>
	Professional	17	20	37	11.56%
	No response	0	0	0	0.00%
	<b>Total</b>	<b>170</b>	<b>150</b>	<b>320</b>	<b>100.00%</b>
Occupation	Govt. Employee	19	56	75	23.44%
	Private Employee	82	52	134	<b>41.87%</b>

	Self Employed	41	36	77	24.06%
	Retired	12	4	16	5.00%
	Student	15	1	16	5.00%
	House wife	1	1	2	0.63%
	No response	0	0	0	0.00%
	<b>Total</b>	<b>170</b>	<b>150</b>	<b>320</b>	<b>100.00%</b>
<b>Location</b>	Rural	38	67	105	32.81%
	Urban	40	78	118	<b>36.88%</b>
	Semi Urban	92	5	97	30.31%
	<b>Total</b>	<b>170</b>	<b>150</b>	<b>320</b>	<b>100.00%</b>
<b>Annual Income</b>	<60,000	0	0	0	0.00%
	60,001 - 100,000	13	0	13	4.06%
	100,001 - 200,000	76	28	104	<b>32.50%</b>
	200,001 - 400,000	47	58	105	32.81%
	> 400,001	18	61	79	24.69%
	No response	16	3	19	5.94%
	<b>Total</b>	<b>170</b>	<b>150</b>	<b>320</b>	<b>100.00%</b>

Table No. 4.2 Profile of the retail outlets.

Profile of the retail outlets	Particulars	Trivandrum	Kollam	Total	
		Frequency	Frequency	Frequency	Percentage
<b>Sample</b>	Municipal Corporation	17	15	32	100.00%
	<b>Total</b>	<b>17</b>	<b>15</b>	<b>32</b>	<b>100.00%</b>
<b>Type of retail outlet</b>	Department Store	0	0	0	0.00%
	Super market	2	11	13	<b>40.63%</b>
	Hyper market	1	4	5	15.63%
	Specialty Store	8	0	8	25.00%
	Discount Store	0	0	0	0.00%
	Co-operative Store	4	0	4	12.50%
	Any Other	2	0	2	6.24%

	<b>Total</b>	<b>17</b>	<b>15</b>	<b>32</b>	<b>100.00%</b>
<b>The nature of the neighborhood</b>	Residential	0	0	0	0.00%
	Industrial	0	0	0	0.00%
	Commercial/Business	2	0	2	6.25%
	Markets/Shopping Centers	4	9	13	<b>40.62%</b>
	Other	11	6	17	53.13%
	<b>Total</b>	<b>17</b>	<b>15</b>	<b>32</b>	<b>100.00%</b>
<b>Nature of the surrounding area</b>	Low Lying	0	6	6	18.74%
	Hilly/Mountainous	0	0	0	0.00%
	Marshy	8	0	8	<b>25.00%</b>
	Subject to vandalism/Riots	3	0	3	9.38%
	Any Other	6	9	15	46.88%
	<b>Total</b>	<b>17</b>	<b>15</b>	<b>32</b>	<b>100.00%</b>
<b>Natural/man made features in the immediate neighborhood</b>	River	5	6	11	<b>34.37%</b>
	Ocean	0	3	3	9.38%
	Lake	3	6	9	<b>28.12%</b>
	Factory	0	0	0	0.00%
	Airport	0	0	0	0.00%
	None	9	0	9	28.13%
	<b>Total</b>	<b>17</b>	<b>15</b>	<b>32</b>	<b>100.00%</b>
<b>Building Condition</b>	Independent Building	11	11	22	<b>68.75%</b>
	Part of another building	6	4	10	31.25%
	<b>Total</b>	<b>17</b>	<b>15</b>	<b>32</b>	<b>100.00%</b>
<b>Tenure of the building</b>	1-5 years	1	2	3	9.37%
	6-10 years	6	4	10	<b>31.25%</b>
	11-15 years	1	7	8	25.00%
	16-20 years	3	2	5	15.63%
	>20 years	6	0	6	18.75%
	<b>Total</b>	<b>17</b>	<b>15</b>	<b>32</b>	<b>100.00%</b>



<b>Part of another building- Which floor</b>	Ground Floor	2	2	4	12.50%
	1-3 floors	4	3	7	<b>21.87%</b>
	4 floor or above	0	0	0	0.00%
	Not applicable (Independent Building)	11	10	21	65.63%
	<b>Total</b>	<b>17</b>	<b>15</b>	<b>32</b>	<b>100.00%</b>
<b>The spread over of the outlet</b>	1 floor	10	7	17	<b>53.13%</b>
	2 floors	0	7	7	21.87%
	3 floors	0	0	0	0.00%
	4 floors	5	1	6	18.75%
	> 4 floors	2	0	2	6.25%
	<b>Total</b>	<b>17</b>	<b>15</b>	<b>32</b>	<b>100.00%</b>

Table No. 4.2 further presents the tenure of the building where the outlets are existing. 31.25% (10 no.s) of the outlets are functioning in buildings which are 6 to 10 years old. 25% (8 no.s) of the outlets are in buildings which are 11 to 15 years old, 18.75% (6 no.s) are in buildings which are more than 20 years old and 15.63% of the outlets are in buildings which are 16 to 20 years old. 21.87% (7 no.s) of the outlets are either in the first floor or in the second floor or in the third floor. 12.5% are in the ground floor. 53.13% (17 no.s) of the shops are spread over only one floor. 21.87% (7 no.s) are spread over 2 floors, 18.75% (6 no.s) are spread over 4 floors and 2 outlets are spread over more than 4 floors.

## V. Hypothesis

H<sup>0</sup>: There is no relationship between the emergency management facilities in the retail outlet and the demand for safe shopping.

## VI. Analysis

Kruskal-Wallis H Test (Preventive measures present and the time spent for shopping).

Kruskal-Wallis H Test (One Way ANOVA on ranks) is a non-parametric method used in place of One Way ANOVA. Here the ranks of the data values are used for the analysis and not the data

points. Table No. 6.1 shows the consolidated results of the test. The different preventive measures present in the building, included the following,

- Fire Extinguishers
- Water Sprinklers
- Fire and smoke alarms
- Windows
- Lightning arrestors
- An emergency kit (with pails, sponges, brooms, torch lights, etc.) on each floor
- Notification prohibiting smoking in the premises
- Water proofing/fire proofing (of the building walls, floors, ceiling, basement, etc).
- Automatic tripping of electrical systems (in case of fire or short circuit.)
- Uninterrupted power supply
- Presence of a Down comer/dry riser.
- Regular structural audit of the outlet
- Automatic Humidity and temperature control
- Pest control/termite treatment.
- Presence of Metal detectors and CCTV.
- Emergency connection to key agencies/services (-fire station, police station, etc).

**Table No. 6.1. Kruskal-Wallis H test (Preventive Measures present and time spent for shopping)**

K W H test	Trivandrum		Kollam	
	Chi-Square	P value	Chi-Square	P value
Fire Extinguishers	16.27	0	9.533	0.02
Water Sprinklers	27.01	0	25.04	0
Fire and smoke alarms	14.63	0	6.521	0.09
Windows	20.84	0	3.889	0.27
Lightning arrestors	10.42	0.02	8.741	0.03
An emergency kit with pails, sponges, brooms, torch lights, etc. on each floor	72.64	0	19.65	0
Notification showing the prohibition of smoking in the premises	79.37	0	5.135	-
Water proofing/fire proofing the building walls, floors, ceiling, basement, etc.	26.23	0	5.567	0.14
Automatic tripping of electrical systems in case of fire or short circuit.	9.282	0.03	3.4	0.33
Uninterrupted power supply in case of power failure.	13.24	0	7.373	0.06
Down comer/dry riser.	18.15	0	5.786	0.12
Regular structural audit.	5.33	0.15	8.369	0.04
Humidity and temperature control	15.22	0	3.558	0.31
Regular pest control/termite	15.1	0	1.967	0.58

treatment.				
Metal detectors/CCTV's	23.71	0	5.035	0.17
Emergency connection to key agencies/services-fire station, police station, etc.	4.288	0.23	12.74	0.01

According to Table No. 6.1, in Trivandrum, majority of the respondents spent more time for shopping if they know there is a fire extinguisher(p value 0.001), water sprinklers (p value 0.000),fire and smoke alarms(p value 0.000), Presence of windows(p value 0.000), An emergency kit with pails, sponges, brooms, torch lights, etc (p value 0.000), Notification showing the prohibition of smoking in the premises (p value 0.000), Water proofing the building walls, floors, ceiling, basement, etc. (p value 0.000), Uninterrupted power supply in case of power failure (p value 0.000), Presence of a down comer/dry riser(p value 0.000), Humidity and temperature control (p value 0.000), Regular pest control/termite treatment (p value 0.002) and Presence of metal detectors/CCTV inside the retail outlet(p value 0.000) does affect the shopping preference of respondents since the p value is less than the significance level and the null hypothesis is rejected. The presence of Lightning arrestors (p value 0.015), automatic tripping of electrical systems in case of fire or short circuit(p value 0.026), regular structural audit(p value 0.149), emergency connection to key agencies/services-fire station, police station, etc(p value 0.232) does not affect the shoppers shopping time. The p-value is more than the significant level and so the null hypothesis is accepted.

According to Table No. 6.1 in Kollam, presence of a fire extinguisher(p value 0.023), fire and smoke alarms (p value 0.089), windows(p value 0.274) , lightning arrestors (p value 0.033),notification showing the prohibition of smoking in the premises (p value 0.162), water proofing/fire proofing the building walls, floors, ceiling, basement, etc. (p value 0.135), automatic tripping of electrical systems in case of fire or short circuit (p value 0.334), uninterrupted power supply in case of power failure (p value 0.061), down comer/dry riser (p value 0.122), regular structural audit (p value 0.039), humidity and temperature control (p value 0.313) regular pest control/termite treatment (p value 0.579) and metal detectors/CCTV (p value 0.169) have p-value above the level of significance and so the null hypothesis is accepted. These

attributes does not have any effect in the shopping habits of customers. Water sprinklers(p value 0.000), an emergency kit with pails, sponges, brooms, torch lights, etc. (p value 0.000), and emergency connection to key agencies/services-fire station, police station, etc(p value 0.005) influence the time spent inside the outlet. And does affect the shoppers shopping time. Since the p-value is less than the significant level, the null hypothesis is rejected.

## **VII.**

### **Interpretation**

1. Presence of fire Extinguishers in the retail outlet is of importance to te customers of Trivandrum, but not Kollam.
2. Water Sprinklers tend to influence the shopping time spend by the people of both Trivandrum and Kollam.
3. A retail outlet with fire and smoke alarms is preferred by the customers of Trivandrum, but for the people of Kollam, this is not of any priority.
4. An enclosed retail outlet with windows which could be opened in case of an emergency situation is of importance to the respondents of Trivandrum. But again this feature is of less importance to the customers of Kollam.
5. The presence of lightning arrestors in the outlet does not have any impact on the shopping habits of the respondents.
6. An emergency kit with pails, sponges, brooms, torch lights, etc. on each floor is preferred by the respondents of both Trivandrum and Kollam.
7. Notification prohibiting smoking in the premises is welcomed by the customers of Trivandrum only
8. A retail outlet with water proof/fire proof walls, floors, ceiling, basement, etc. is preferred by the respondents of Trivandrum. It is not of my importance while selecting a shopping spot for the people of Kollam.
9. Automatic tripping of electrical systems in case of fire or short circuit is not considered as an element to be considered while spending time in a retail outlet.

10. Uninterrupted power supply during shopping hours is a welcome attribute for the respondents of Trivandrum but not Kollam.
11. The presence of a down comer/dry riser in the building is again welcomed by the respondents of Trivandrum but not Kollam.
12. Regular structural audit. Is not of any concern while choosing a place for shopping. .
13. The respondents of Trivandrum welcome humidity and temperature control inside the retail outlet.
14. Regular pest control/termite treatment is also preferred by the respondents of Trivandrum
15. The presence of metal detectors/CCTV is considered as a must for safe shopping experience for the people of Trivandrum
16. Emergency connection to key agencies/services-fire station, police station, etc is preferred by the shoppers of Kollam but not of Trivandrum.

## VIII.

## Conclusion

The analysis reveal a mixed response from the part of the customers. While the respondents of Trivandrum are more conscious about their safety inside a retail outlet, those of Kollam do not consider it a necessity to be thought of. May be the presence of national and international retail brands and an educated population which is more cosmopolitan in nature has contributed to the shopping choices of the retail customer in Trivandrum. Disaster preparation goes a long way in mitigating the effects of an emergency. Kollam is a district with a lot of water bodies which include both lakes and rivers. The district is vulnerable to floods, landslides and lightning attacks. Emergency Management in retail outlets is possible only through a joint effort by both retailers and customers. The people of Kollam has to go a long way in realizing that the places which hold retail outlets has to be approached with more caution in relation to the safety and security they are offering while they lure, entertain and try hold their customers.

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