
DISASTER MANAGEMENT IN HARYANA : A GOVERNMENT OFFICIALS PERSPECTIVE

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ABSTRACT

Public Administration is an activity common to all countries and all levels of government. The global expansion of public related functions and services has made the role of Public Administration as highly important and significances, thus making it a complex and specialized discipline of enquiry. The basic concern of public administration as a study includes: administrative process, structure of public organization, decision of bureaucratic etc. However, in present global scenario public administration is operating in challenging of global and national issues like environmental, marketing decision, and disaster issues. Public Administration of any country & state has a responsibility of disaster management mechanism. In modern research scenario, disaster management is an integral part of public administration and University of Grant Commission has also included a subject of research in public administration.

KEYWORDS: *Perspective, Commission, bureaucratic, administrative, disaster.*

INTRODUCTION

A disaster may be defined as- “a serious disruption of the functioning of society, coursing widespread human, material and environment metal losses which exceeds the ability of the affected material to cope using its own resources”.¹ The Disaster Management Act 2005 defines disaster as “a catastrophe, mishap, calamity or grave occurrence affecting any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to, or degradation of environment, and is of such a nature magnitude as beyond the coping capacity of the community of the affected area”.²

Thus, the impacts of disasters are the multidimensional, affecting it in all aspects - domestic, social, economic and environment etc. A disaster is a product of hazards such as earthquake, flood or windstorm coinciding with a vulnerable situation, which might include communities, cities or villages. There are four main components in this definition- hazard, vulnerability, Risk and Capacity Building:

Hazard × Vulnerability × Risk

= Disaster

Capacity Building

From the above equation it is clear that quantum of disaster is directly proportionate to Hazard, Vulnerability and Risk, where as it is indirectly related to capacity building.

The present paper focuses on disaster management in Haryana. Haryana state is one of the disaster prone state in India so it was decided to study disaster management in the state is a fair representative of disaster management in India .. In this paper views of government officials / functionaries are evaluated

(A) Disaster Management at the Central Level

In accordance with the provisions of the DM Act 2005, the Central Government will take all such measures, as it seems necessary or expedient, for the purpose of DM and will coordinate actions of all agencies. The Central Ministries and Departments will take into consideration the recommendations of the State Governments while deciding upon the various pre-disaster requirements and for deciding upon the measures for the prevention and mitigation of disasters. It will ensure that the Central Ministries and departments integrate measures for the prevention and mitigation of disasters into their developmental plans and projects, make appropriate allocation of funds for pre-disaster requirements and take necessary measures for preparedness and to effectively respond to any disaster situation or disaster. It will have the power to issue directions to NEC, State Governments/SDMAs, SECs or any of their officers or employees, to facilitate or assist in DM, and these bodies and officials will be bound to comply with such directions. The Central Government will extend cooperation and assistance to the State Governments as required by them or otherwise deemed appropriate by it. It will take measures for the deployment of the Armed Forces for DM if required. The role of the Armed Forces will be governed by the instructions laid out in Instructions on Aid to Civil Authorities 1970. The Central Government will also facilitate coordination with the UN Agencies, other International organisations and Governments of foreign countries in the field of DM. Ministry of External Affairs, in co-ordination with MHA, will facilitate external co-ordination and cooperation³.

(B) Disaster Management at the State level

The responsibility to cope with natural disasters is essentially that of the state government. The role of the Central Government is supportive in terms of supplementation of physical and financial resources. The Chief Secretary of the state heads a state level committee which is overall in charge of the relief operation in the state and rehabilitation measures in the wake of natural disasters in their states functions under the overall direction and control of the state level committee. In many states, Secretary, Department of Revenue is also in charge of relief. States Governments usually have relief manuals and the districts have their contingency plan that is updated from time to time. Haryana State has also adopted the same procedure. In the Haryana state the chief Secretary is the overall in charge of Haryana Disaster Management Committee. In case of disasters, the Haryana State Government also invites NGOs, National and International relief organizations to join in the efforts to reach out the victims.⁴

(C) Disaster Management at the District level

The District Collector will be responsible for coordinating all disaster management activities at the district level. There shall be a District Disaster Management Authority headed by Collector. The District Disaster Management Authority shall approve a district disaster management planning and review all measures relating to preparedness and response to various hazards. The District Disaster Management Committee comprises members from Zilla Panchayat, Zilla

Parishad, different line departments, NGOs, District Red Cross and others to be notified by the Department of Disaster Management from time to time. In times of disasters, District Collector shall constitute a District Relief Committee to oversee the management of relief. This will be in accordance with the instructions issued by the Department of Disaster Management from time to time and will take all measures for the purpose of disaster management in the district in accordance with the guidelines laid by NDMA and SDMA.⁵

DISASTER MANAGEMENT IN HARYANA CONTEXT

Haryana state is vulnerable to a multitude of disasters and is categorized as a multi-hazard prone state. The state experiences various kinds of disasters of recurrent nature which result in loss of life, livelihood and property (public and private), and disruption of economic activity. The following hazards in Haryana state: **(a) Floods, (b) Droughts, (c) Earthquakes, (d) Hailstorms, (e) Health Epidemics:**

OBJECTIVES OF THE STUDY

The study has the following objectives:

- To evaluate & analyze the role of government officials in Disaster Management at State Level.

HYPOTHESES OF THE STUDY

The study has the following hypotheses:

- The organisation structure of Disaster Management in Haryana is quite satisfactory to deal with natural & man-made disasters calamities and exigencies.
- Level of cooperation and coordination between different government departments dealing with disaster management is upto the mark
- The role of state government officials in Disaster Management is quite satisfactory.

RESEARCH METHODOLOGY

Selection of the Sample

To collect the requisite primary information, the study has made use of a multistage, stratified purposive random sampling technique.

The sampling scheme are based on the following two observations: First, all the districts/areas in the state is not equally disaster prone i.e. some districts/ areas are more disaster prone than others. Therefore the sampling has been purposive, so as to include only the disaster prone districts/blocks in the sampling frame. Secondly, the Disaster Management Act envisages a vital role for the administration at different level in disaster management. This fact should also be given due consideration in any stratification of the state for sampling purposes.

With this background a brief outline of the proposed multistage stratified random sampling technique is as follows:

Stage I: One District from each of the four administrative divisions randomly selected amongst from the disaster prone districts of the divisions.

Stage II: Two blocks from each of the four districts selected at stage I, were randomly selected

amongst from the most disaster prone blocks of the districts.

Stage III: From each of the eight blocks selected at stage II, one village was randomly selected for studying the disaster management at the micro level.

The details of the selected districts, blocks and villages are as follows:

DISTRICTS	BLOCKS OF	VILLAGES
Kurukshetra	Thanesar, Pehowa	Kirmich, Nikimpura
Karnal	Nilokheri, Assandh	Sikari, Balha
Jind	Alewa, Julana	Dalamwala, Ramrai
Faridabad	Ballabhgar, Tigaon	Khandwali, Kheripull

The primary data has been collected through a well structured interview schedule. In total, views of 48 government officials respondents are evaluated. The respondents were asked to evaluate each of the above questions on the following five point scale.

Strongly Disagree	Moderately Disagree	Agree	Strongly Agree	Fully Agree
0	1	2	3	4

Difference of opinion of government will be worked out in term of Standard Deviation. As a rule of thumb it has been assumed the size of the standard deviation greater than 2 has been treated large or significant and less than 2 insignificant.

- Q1. Are you satisfied with the national disaster management policy?
- Q2. Do you want a separate ministry department for disaster management at national & state level?
- Q3. Are you satisfied with role of Haryana Government in the course of disaster management?
- Q4. Are you satisfied with Government of Haryana Preparedness for Disaster Management Policy?
- Q5. Are you satisfied with the Haryana Government disaster reduction and mitigation policy?
- Q6. Are you satisfied with the Haryana Government state dept. /agencies coordination in disaster management?
- Q7. Are you satisfied with role of Government in enforcing Indian standard codes in construction of buildings?
- Q8. Are you satisfied with Haryana Government financial facility in disaster management mechanism?
- Q9. Does the Haryana Government interact with NGOs, CBOs & VOs for Preventing/Reduction in disaster management process?
- Q10. Does the Haryana Government interacts with Media for spreading awareness in Disaster Process?
- Q11. Are you satisfied with the Haryana Government public awareness & training programme for Disaster Management?
- Q12. Do you feel any the need for district disaster management policy (DDMP)?

Q13. Are you satisfied with the kind of coordination among district agencies in disaster management.

Q14. Do you feel the need for district disaster reduction and mitigation policy at block level?

Q15. Do you feel the need for Village disaster management policy (VDDM)?

GOVERNMENT OFFICIALS - RESPONSE IN DISASTER MANAGEMENT

District-wise responses of the government official with regard to their views on national disaster policy in respect of the four sample districts i.e. Kurukshetra Karnal, Jind and Faridabad.

Kurukshetra Districts Officials responses on National Disaster policy

Respondents Government Officers	Strongly Disagree	Moderately Disagree	Agree	Strongly Agree	Fully Agree	Score
1	0					
2		1				1
3			2			2
4			2			2
5		1				1
6			2			2
7				3		3
8					4	4
9			2			2
10			2			2
11					4	4
12			2			2
Total	0	2	12	3	8	25

Karnal Districts Officials responses on National Disaster policy

Respondents Government Officers	Strongly Disagree	Moderately Disagree	Agree	Strongly Agree	Fully Agree	Score
1			2			2
2		1				1
3		1				1
4		1				1
5			2			2
6			2			2
7	0					0
8	0					0
9				3		3
10				3		3
11			2			2
12			2			2
Total	0	3	10	6		19

Faridabad District Officials responses on National Disaster policy

Respondents Government Officers	Strongly Disagree	Moderately Disagree	Agree	Strongly Agree	Fully Agree	Score
1	0					
2		1				1
3			2			2
4			2			2
5				3		3
6		1				1
7				3		3
8					4	4
9		1				1
10		1				1
11			2			2
12			2			2
Total		4	8	6	4	22

Jind District Officials responses on National Disaster policy

Respondents Government Officers	Strongly Disagree	Moderately Disagree	Agree	Strongly Agree	Fully Agree	Score
1			2			2
2		1				1
3				3		2
4					4	4
5			2			2
6			2			2
7		1				1
8		1				1
9				3		3
10			2			2
11			2			2
12			2			2
Total		3	12	6	4	23

District-wise score of the sample district on five point scale in respect of question No 1 and their standard deviation are respectively reported in Table 3.1 and Table 3.2 below:

District-wise Score in Respect of Question No. 1

Sr. No.	District	Score X_i
1	Kurukshetra	25
2	Karnal	19
3	Faridabad	22
4	Jind	23
	Total	89

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question No. 1

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	25	25-22.5 = 2.75	7.5625
2	Karnal	19	19-22.5 = -3.75	10.5625
3	Faridabad	22	22-22.5 = -0.25	.0625
4	Jind	23	23-22.5 = 0.75	0.5625
	Total	89		18.75

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{89}{4} = 22.5$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{18.75}{4}} = 2.165$$

A zero value of the Standard Deviation (SD) means there is no difference in opinion of the Government officials across sample districts. While a positive value indicates a difference in the responses of the government officials. The larger the value of the S.D., the greater the difference in the opinion of the state officials responses. Here SD = 2.165 which indicates that there are considerable differences in the state Government officials responses in respect of question no. - 1 Presents **District-wise** score of the sample districts on the five point scale in respect of question No 2 and their standard deviation.

District-wise score in Respect of Question No. 2

Sr. No.	District	Score X_i
1	Kurukshetra	32
2	Karnal	36
3	Faridabad	30
4	Jind	28
	Total	126

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question No. 2

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	32	32-31.5 = 0.5	0.25
2	Karnal	36	36-31.5 = 4.5	20.25
3	Faridabad	30	30-31.5 = -1.5	2.25
4	Jind	28	28-31.5 = -3.5	12.25
	Total	126		35

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{126}{4} = 31.5$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{35}{4}} = 2.95804$$

Thus the S.D. is respect of question no. 2 is 2.958 which is slightly larger than in question 1. This means that difference in opinion of district officials in respect of question 2 is larger than in respect of question no. 1

District-wise score and S.D. of the sample districts are reported in Table 3.5 and Table 3.6 in respect of question no. 3.

District-wise score in Respect of Question No. 3

Sr. No.	District	Score X_i
1	Kurukshetra	25
2	Karnal	20
3	Faridabad	18
4	Jind	18
	Total	81

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question No. 3

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	25	25-20.25 = 4.75	22.5625
2	Karnal	20	20-20.25 = -0.25	0.0625
3	Faridabad	18	18-20.25 = -2.25	5.0625
4	Jind	18	18-20.25 = -2.25	5.0625
	Total	81		32.75

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{81}{4} = 20.25$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{32.75}{4}} = 2.861$$

Thus, the SD and respect of question no. 3 is 2.861 which is little bit less than SD of responses in respect of question no. 2 but is greater than the question no. 1.

Presents District-wise score of the sample districts on the five point scale in respect of question No 4 and their standard deviation.

District-wise score in Respect of Question No. 4

Sr. No.	District	Score X_i
1	Kurukshetra	24
2	Karnal	19
3	Faridabad	25
4	Jind	19
	Total	

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 4

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	24	24-21.75 = 2.25	5.0625
2	Karnal	19	19-21.75 = -2.75	7.5625
3	Faridabad	25	25-21.75 = 3.25	10.5625
4	Jind	19	19-21.75 = -2.75	7.5625
	Total	87		30.75

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{87}{4} = 21.75$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{30.75}{4}} = 2.772634$$

We mentioned that the larger the SD, the greater the difference in responses of the state officials of the sample districts. The SD in respect of question no. 4 is S.D. = 2.772 which is slightly less than question no. 2, 3 and more than question no. 1.

District-wise score of the sample districts on five point scale in respect of question No 5 and their standard deviation are, respectively.

District-wise score in Respect of Question No. 5

Sr. No.	District	Score X_i
1	Kurukshetra	18
2	Karnal	17
3	Faridabad	20
4	Jind	17
	Total	72

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 5

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	18	18-18 = 0	0
2	Karnal	17	17-18 = -1	1
3	Faridabad	20	20-18 = 2	4
4	Jind	17	17-18 = -1	1
	Total	72		6

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{72}{4} = 18$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{6}{4}} = 1.224745$$

Thus the SD. in respect of question no. 5 is 1.224 which is least across all the questions this indicates that difference of opinion of government officials is minimum in respect of question no. 5

District-wise score of the sample districts on the five point scale in respect of question No 6 and their standard deviation.

District-wise score in Respect of Question No. 6

Sr. No.	District	Score X_i
1	Kurukshetra	30
2	Karnal	29
3	Faridabad	29
4	Jind	26
	Total	114

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 6

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	30	$30 - 26.5 = 3.5$	12.25
2	Karnal	29	$29 - 26.5 = 2.5$	6.25
3	Faridabad	29	$29 - 26.5 = 2.5$	6.25
4	Jind	26	$26 - 26.5 = -0.5$	0.25
	Total	114		25

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{114}{4} = 28.5$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{25}{4}} = 2.5$$

Here the value of S.D. is 2.5. Which is maximum across all other questions This indicates that difference of opinion of Government official is maximum in respect of questions 6.

District-wise score and standard deviation of the sample districts are respectively

District-wise score in Respect of Question No. 7

Sr. No.	District	Score X_i
1	Kurukshetra	26
2	Karnal	22
3	Faridabad	18
4	Jind	20
	Total	86

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 7

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	26	26-21.5 = 4.5	20.25
2	Karnal	22	22-21.5 = 0.5	0.25
3	Faridabad	18	18-21.5 = -3.5	12.25
4	Jind	20	20-21.5 = -1.5	2.25
	Total	86		35

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{86}{4} = 21.5$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{35}{4}} = 2.95804$$

Here the value of standard deviation in respect of question no. 7 is 2.958 which is slightly larger than question no... 1,3,4,5, It indicates difference in opinion of district Government official in respect of question no. 7 is larger than in respect of question no. 1,3,4,5

District-wise score of the sample districts on the five point scale in respect of question No 8 and their standard deviation.

District-wise score in Respect of Question No. 8

Sr. No.	District	Score X_i
1	Kurukshetra	20
2	Karnal	17
3	Faridabad	18
4	Jind	17
	Total	72

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 8

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	20	20-18.75 = 1.25	1.5625
2	Karnal	17	17-18.75 = -1.75	3.0625
3	Faridabad	18	18-18.75 = -0.75	0.5625
4	Jind	17	17-18.75 = -1.75	3.0625
	Total	72		6.75

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{72}{4} = 18.75$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{6.75}{4}} = 1.299038$$

Here the value of standard deviation in respect of question no. 8 is 1.299 which is smaller than the S.D's in respect of questions 1 to 4,6,7.

District-wise score of the sample districts on five point scale in respect of question No 9 and their standard deviation.

District-wise score in Respect of Question No. 9

Sr. No.	District	Score X_i
1	Kurukshetra	24
2	Karnal	19
3	Faridabad	25
4	Jind	19
	Total	

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 9

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	24	24-21.75 = 2.25	5.0625
2	Karnal	19	19-21.75 = -2.75	7.5625
3	Faridabad	25	25-21.75 = 3.25	10.5625
4	Jind	19	19-21.75 = -2.75	7.5625
	Total	87		30.75

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{87}{4} = 21.75$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{30.75}{4}} = 2.772634$$

Here the value of SD = 2.772 which is less than the S.Ds. in respect of question no. 2, 3, 6 and 7 but is larger than 1,5, 8 and 10 below.

District-wise score of the sample districts on five point scale in respect of question No 10 and their standard deviation are respectively.

District-wise score in Respect of Question No. 10

Sr. No.	District	Score X_i
1	Kurukshetra	30
2	Karnal	32
3	Faridabad	29
4	Jind	33
	Total	124

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 10

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	30	30-31 = -1	1
2	Karnal	32	32-31 = 1	1
3	Faridabad	29	29-31 = -2	4
4	Jind	33	33-31 = 2	4
	Total	124		10

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{124}{4} = 31$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{10}{4}} = 1.581139$$

Here the value of SD is 1.581 which is quite less than S.Ds in respect of all the questions numbering from 1 to 4,6,7 and 9.

Table 3.21 and 3.22 below respectively presents District-wise score of the sample districts on the five point scale in respect of question No 11 and their standard deviation.

District-wise score in Respect of Question No. 11

Sr. No.	District	Score X_i
1	Kurukshetra	18
2	Karnal	17
3	Faridabad	20
4	Jind	17
	Total	72

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 11

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	18	18-18 = 0	0
2	Karnal	17	17-18 = -1	1
3	Faridabad	20	20-18 = 2	4
4	Jind	17	17-18 = -1	1
	Total	72		6

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{72}{4} = 18$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{6}{4}} = 1.224745$$

Thus the S.D. in respect of question no. 11 is 1.224 which is the smallest of the S.Ds of all the other questions. This means that the difference in opinion of district officials in respect of question no. 5 and 11 is the minimum.

District-wise score of the sample districts on the five point scale in respect of question No 12 and their standard deviation.

District-wise score in Respect of Question No. 12

Sr. No.	District	Score X_i
1	Kurukshetra	29
2	Karnal	30
3	Faridabad	32
4	Jind	27
	Total	118

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 12

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	29	29-29.5 = -0.5	0.25
2	Karnal	30	30-29.5 = 0.5	0.25
3	Faridabad	32	32-29.5 = 2.5	6.25
4	Jind	27	27-29.5 = -2.5	6.25
	Total	118		13

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{118}{4} = 29.5$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{13}{4}} = 1.802776$$

Here the value of SD = 1.802776 which is quite less in comparison to SDs of question no. 1 to 4,6,7 and 9.

District-wise score of the **sample districts** on five point scale in respect of question No 13 and their standard deviation are respectively.

District-wise score in Respect of Question No. 13

Sr. No.	District	Score X_i
1	Kurukshetra	20
2	Karnal	17
3	Faridabad	18
4	Jind	17
	Total	72

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 13

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	20	20-18 = 2	4
2	Karnal	17	17-18 = -1	1
3	Faridabad	18	18-18 = 0	0
4	Jind	17	17-18 = -1	1
	Total	72		6

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{72}{4} = 18$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{6}{4}} = 1.224745$$

Here the value of SD = 1.224745 which is minimum across all the questions. This means that difference in opinion of district officials in respect of question no. 5,11 and 13 is minimum

District-wise score of the sample districts on five point scale in respect of question No 14 and their standard deviation are respectively reported in Table 3.27 and Table 3.28 below:

District-wise score in Respect of Question No. 14

Sr. No.	District	Score X_i
1	Kurukshetra	16
2	Karnal	18
3	Faridabad	17
4	Jind	20
	Total	71

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 14

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	16	16-17.75 = -0.75	0.5625
2	Karnal	18	18-17.75 = 0.25	0.0625
3	Faridabad	17	17-17.75 = -0.75	0.5625
4	Jind	20	20-17.75 = 2.25	5.0625
	Total	71		8.75

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{71}{4} = 17.75$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{8.75}{4}} = 1.47902$$

The standard deviation in respect of question no. 14 is 1.47902 which is very less in respect of all the questions. Which is slightly on higher side via-a-vis question no. 5,8 and 11

District-wise score of the sample districts on five point scale in respect of question No 15 and their standard deviation are respectively.

District-wise score in Respect of Question No. 15

Sr. No.	District	Score X_i
1	Kurukshetra	30
2	Karnal	32
3	Faridabad	29
4	Jind	28
	Total	119

Standard Deviation of Government Official Staff Responses Across Sample Districts in Respect of Question no. 15

Sr. No.	District	Score X_i	Deviation from mean $(X_i - \bar{X})$	Squared Deviation $(X_i - \bar{X})^2$
1	Kurukshetra	30	30-29.75= 0.25	0.0625
2	Karnal	32	32-29.75 2.25	5.0625
3	Faridabad	29	29-29.75 -0.75	0.5625
4	Jind	28	28-29.75 -1.75	3.0625
	Total	119		8.75

$$\text{Mean} = \bar{X} = \frac{\sum x_i}{n} = \frac{119}{4} = 29.75$$

$$S.D. = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n}} = \sqrt{\frac{8.75}{4}} = 1.47902$$

Here the value of SD is 1.47902 which is quite less than the SDs of other questions and slightly on the higher side via vis-a-vis question no 5,8,11, and 13.

The ranking of difference of opinion of the government officials in respect of the 15 questions is presented below in Table 3.31

RANKING OF DIFFERENCE OF OPINION OF THE GOVERNMENT OFFICIALS

Questions	Standard Deviation	Rank
1	2.165	5
2	2.958	2
3	2.861	3
4	2.772	4
5	1.224	10
6	4.924	1
7	2.958	2
8	1.299	9
9	2.772	4
10	1.581	7
11	1.224	10
12	1.802	6
13	1.224	10
14	1.479	8
15	1.479	8

It is evident from Table 3.31 that the difference in opinion of Government officials across the four sample districts is maximum in respect of question no. 6 and minimum in respect of question no. 5, 11 and 13.

Now we turn to analyse non government officials responses in disaster management.

Concluding Remarks

Broadly it may be inferred that our hypotheses relating to questions no. 4,5,7,8,9,11,12,14, 15

may be accepted while those relating to rest of the questions stand rejected. **Given that these hypotheses deal with disaster management policy by government officials themselves the acceptance of these hypotheses may be taken with a pinch of salt. as has already been cautioned in chapter 3rd**

SUGGESTIONS

1. Awareness Programme for Personal/ Public in Disaster Management: awareness for disaster reduction is must amongst policy makers, decision makers, administrators, professionals (architects, engineers and others at various levels) financial institutions (banks, insurance, house financing institutions) and NGOs and voluntary organizations. Thus, Public awareness must be created through many tools of awareness like T.V, Radio, meetings & committees.
2. Need for Specific Disasters Policy from Villages to District Level: There is no specific disasters policy at village to district level. As many places are affected in various types of disaster like droughts, floods & fire etc., disaster reduction policy should be formulated from village to district level.
3. Information Technology: The technological advancements especially in the information and communication sector have provided a real yardstick to warn, prepare, share, respond, quickly to a disaster for minimizing its impact and in some cases it is even possible to avoid the damages. Following latest technologies can be helpful in the reduction of damage by a disaster.
4. Disaster Knowledge Network: A National Disaster Knowledge Network be established to cover natural, manmade and biological disasters in all their varied dimensions. The proposed Disaster Knowledge Network should be a network of networks, tuned to the felt needs of a multitude of users like disaster managers, decision makers, affected communities and media. It should also serve as an interactive platform, and in fact a huge black board in cyberspace for all players, major and minor.
5. International Co-operation: International cooperation in strengthening sustainable institutional mechanisms. International disaster assistance programmes not to be limited to geographic area of the calamity but also have a component to build nationwide resilience.
6. Planning: The most important component of preparedness is planning for all contingencies. The plans have to be linked with different support departments, linking district plans to state plans and state plans to national plan i.e. horizontal and vertical integration. Recognizing this, the committee recommends the following measures to be taken:
7. Forecasting, warning and alert systems: There is a need to improve communication links, forecasting, control rooms, by modernising the existing facilities in Haryana state at the state to village levels.
8. Police & Para Military Force: The trained manpower available with country has to be further strengthened to help channelize them better for disaster management. Police is primary to response in case of emergencies and therefore there is a need to identify them better for the purpose of disaster management.

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