



KPEPC Hazard Vulnerability Survey

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Executive Summary

This report presents the findings of the 2010 Kanawha Putnam Emergency Planning Committee (KPEPC) Hazard Vulnerability Assessment. This assessment will be used to identify gaps or deficiencies in the Kanawha Putnam Emergency Management Plan and to highlight areas where changes are necessary. In addition, the results have the potential to be used to develop exercise and training programs. This annual exercise is one of the central tasks performed by local emergency planning committees (LEPCs). Initially, this hazard vulnerability assessment specifically focused on chemical hazards; however, as planning and response efforts have moved towards an all hazards approach the scope of the assessment has broadened.

This hazard vulnerability assessment tool evaluates a variety of hazards to determine levels of probability, risk, and preparedness. This assessment focuses on all hazards by grouping them into a variety of categories (i.e. natural events, accidental events, terrorist/criminal events, civil/political events, special events). Overall the results of the hazard vulnerability assessment did not drastically change over the course of the last several years. The following table is a summary of the top events identified under probability, risk, and preparedness. Also included in the table is a listing of the overall risk rank for the top events.

Ranked	Probability	Risk	Preparedness (highest level of preparedness)	Overall Risk Rank
#1	Highway accidents Thunderstorms	Food and water contamination	Fire	Dam Failure
#2		Biological attack	Dignitary Visits	Flood
#3	Flood	Chemical warfare	Flood	Chemical release
#4	Heavy snow	Radiological (dirty bomb)	Protest	Food and water contamination

Table 1 – Summary of Survey Results

The survey results indicate that the events with the highest *probabilities* are thunderstorms, highway accidents, flood, and heavy snow. These tend to be hazards which are common in Kanawha and Putnam Counties. Over the course of the last year each of these events

has occurred requiring varying levels of emergency response. Highway accidents and thunderstorms (or more specifically high winds) are common occurrences with limited consequences and also tend to be limited in scope and duration. Floods and heavy snows are two naturally occurring hazards which tend to have more severe consequences and both generally have a broader impact and a longer duration.

The events with the highest level of *risk* were identified as food and water contamination, biological attacks, chemical warfare, and radiological incidents. The majority of the top hazards are those events which are uncommon in Kanawha and Putnam Counties. Many of the top threats could be grouped into a broader CBRNE threat classification. Floods remain a top risk to the region even though a great deal of work has been done to address both prevention and mitigation.

The respondents reported that highest level of *preparedness* was linked to fire, dignitary visits, floods, and protests. On the surface this makes sense because these hazards are those which are very common and a great deal of work has been completed in these areas. Emergency agencies have well-developed emergency response plans and communities tend to be more prepared to threats they face on a regular basis.

This risk factor takes into the probability of occurrence, the risk or consequences associated with each hazard, and the preparedness level of Kanawha and Putnam Counties to respond to the incident. According to the survey dam failure, flooding, chemical releases, and food and water contamination were the hazards topping the risk rankings. This list is where the Kanawha Putnam Emergency Planning Committee should focus training and planning efforts. These are hazards that have the highest probability and risk and the lowest level of preparedness.

Introduction

Purpose and Scope

A Hazard Vulnerability Analysis (HVA) is the process of evaluating risk associated with a specific hazard and defined in terms of probability and frequency of occurrence, magnitude, severity, exposure, and consequences. The Kanawha Putnam Emergency Planning Committee HVA provides in-depth knowledge of the hazards and vulnerabilities that affect Kanawha Putnam Counties and its municipalities. This assessment uses an all-hazards approach for evaluating the hazards that affect the region and the associated risks and impacts presented by each hazard.

This HVA provides the basic information necessary to identify elements which need to be included in the emergency operations plan. The HVA is not a static document, but should be reviewed on an annual basis to keep it current. Potential future hazards include changing technology, new facilities, dynamic development patterns, and demographic and socioeconomic changes into or out of the area.

Assessment Tool

The 2010 Hazard Vulnerability Assessment was conducted using a web-based survey open to all members of the KPEPC. This represented a new approach for completing the survey in the hope that it would increase participation. The survey was set up to require respondents to complete all of the fields before the survey could be submitted. The on-line survey was open from October 20, 2010 to November 30, 2010.

A total of 47 responses were obtained. The respondents were asked to identify their membership category and the number years they have been associated with the KPEPC. The respondents represented nearly all of the membership categories (see Figure 1 – Membership of Respondents). Those reporting an “other” membership category included utility companies, retirees, American Red Cross, and several other miscellaneous groups.

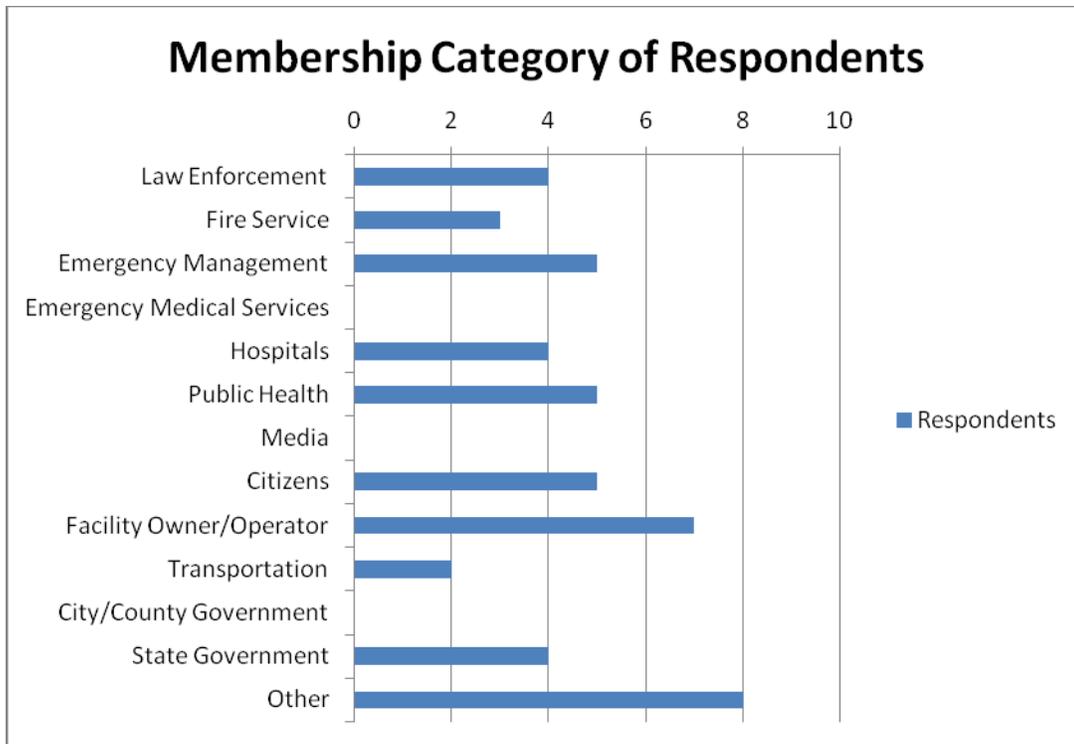


Figure 1 – Membership of Respondents

The majority of the respondents reported having been associated with the KPEPC for over five years (see Table 2 – Length of Involvement with KPEPC). Only four of the respondents reported having less than one year of involvement with the KPEPC. It is expected that respondents having a longer tenure with the KPEPC would have a deeper understanding of the risk facing Kanawha and Putnam Counties.

Length of Involvement with KPEPC	Respondents
Less than a year	4
1 to 2 years	7
3 to 5 years	11
5 to 10 years	13
Longer than 10	12

Table 2 – Length of Involvement with KPEPC

Selection of Assessment Scenarios

The selection of assessment scenarios or events was based on historical occurrence of similar incidents in Kanawha and Putnam Counties. Additional events were added to the

assessment based upon the recommendation of homeland security and emergency management professionals (see Appendix 1 – Hazard Vulnerability Assessment Events for a comparison of the current survey to the 2008 version). The events were group around the following categories: natural disasters, accidental events, terrorist/criminal attacks, civil/political events, or special events. Under each of the event types there were multiple examples of incidents (see Table 3 – Number of Hazards per Event). A total of 54 events were included in the survey.

Event Category	Number of Hazards
Natural disasters	13
Accidental events	17
Terrorist/criminal attacks	11
Civil/political events	8
Special events	5

Table 3 – Number of Hazards per Event

Hazard Vulnerability Assessment

To complete the hazard vulnerability assessment, each identified hazard was evaluated for its probability of occurrence, risk to Kanawha and Putnam Counties, and the current level of preparedness. The hazard vulnerability analysis tool is simply that a tool. Using this tool, each potential hazard is evaluated as described above and scored as appropriate in the areas of probability, risk, and preparedness. Each of the hazards was ranked based upon the individual scoring as described in each of the following sub-sections. Included in the following tables are the ranking from 2008 (the last time the assessment was conducted).

Probability

As we understand disasters are not predictable with any degree of accuracy. However, familiarity with the geographic area, common sense, and a little research will identify those for which the facility must be most prepared. It is important to consider both normally expected occurrences as well as unlikely scenarios. The respondents were asked to rate the probability of an event occurring. The response choices were none, low, medium, or high. No specific definitions were provided for the precise classification of the various level of probability. It was left intentional vague to allow participants to bring their own experiences to the assessment.

The number of response in each category were multiplied by the weighted value (none = 0, low = 1, medium = 2, or high = 3). Each of these weighted scores was then added to obtain a cumulative weighted score (see Table 4 – Top Probability Scores). The evaluation process provided a weighted score for each of the categories in order to determine the events with the highest probability of occurring. The higher the number the greater the probability the event would occur (see Appendix 2 – Probability Scores for a complete listing).

Event	None (x 0)	Low (x 1)	Medium (x 2)	High (x 3)	Total
Transportation accident (highway)	0	2	18	27	119
Thunderstorms	0	1	20	26	119
Flood	0	5	13	29	118
Heavy Snow	0	1	29	17	110
Hazmat Accident	0	6	22	19	107
Dignitary Visits	0	10	14	23	107

Table 4 – Top Probability Scores

Risk

Risk is the potential impact that any given hazard may have on Kanawha and Putnam Counties. Risk must be analyzed to include a variety of factors, which may include, but is not limited to the following: threat to human life, threat to health and safety, damage to infrastructure, and economic consequences. The threat to human life and the lesser threat to health and safety are considered to be so significant that they are given separate consideration on the hazard vulnerability analysis document. The evaluation considered each possible disaster scenario to determine if either of these human impact threats is a factor. The remaining three categories on the analysis tool classify risk factors as to their disruption to the region as a high, moderate, or low classification. Again, specific definitions were not provided.

For each of the events the respondents were asked to rate the consequence. The consequences were identified as low, moderate, high, health/safety, and life threatening. No specific definitions were provided to the respondents. The evaluation process provided a weighted score for each of the categories in order to determine the events with the highest consequences. The number of response in each category were multiplied by the weighted value (low = 1, moderate = 2, high = 3, health/safety = 4, and life threatening = 5). Each of these weighted scores was added to obtain a cumulative weighted score (see Table 5 – Top Risk Scores). As the resulting number increases the consequence of the event also increases (see Appendix 3 – Risk Scores for a complete listing).

Event	Low (x1)	Moderate (x2)	High (x3)	Safety (x4)	Life (x5)	Total
Food and Water Contamination	1	3	2	13	28	205
Biological Attack	2	2	2	13	28	204
Chemical Warfare	1	3	4	11	28	203
Flood	1	4	3	14	25	199
Radiological (dirty bomb)	2	4	4	12	25	195

Table 5 – Top Risk Scores

Preparedness

A final issue to evaluate in this analysis is the current level of preparedness of Kanawha and Putnam Counties to manage any given disaster. The respondents were also asked to assess

the level of preparedness for each of the incidents. Levels of preparedness were rated as good, fair, or poor. The evaluation process provided a weighted score for each of the categories in order to determine the events with the highest consequences. The number of response in each category were multiplied by the weighted value (poor = 3, fair = 2, or good = 1). Each of these weighted scores was added to obtain a cumulative weighted score (see Table 6 – Top Preparedness Score). The higher the resulting the number the preparedness level increases; the concern for this assessment are the lower numbers (see Appendix 4 – Preparedness Scores for a complete listing).

Event	Good (x1)	Fair (x2)	Poor (x3)	Total
Fire	37	10	0	57
Dignitary Visits	31	15	1	64
Flood	30	16	1	65
Protest	30	15	2	66
Transportation accident (highway)	30	14	3	67
Public Demonstrations	30	14	3	67

Table 6 – Top Preparedness Score

Summary

The following graph (see Figure 2 – Summary of Event Categories) shows the sum of all the hazards grouped into event categories. The chart shows that the greatest risk within each event category equalized by the number of individual hazards. This analysis was completed by adding all of the individual hazard scores together and then dividing by the number of individual hazards within that specific event category (see Table 3 – Number of Hazards per Event). For instance, there are a total of 13 hazards in natural event category and 17 hazards in the accident event category. The following equations were used to generate the summary of events by each category.

$$\sum_{\text{Natural events}} = (\text{Probability}^1 + \text{Probability}^2 + \dots \text{Probability}^{13})/13$$

$$\sum_{\text{Natural events}} = (\text{Risk}^1 + \text{Risk}^2 + \dots \text{Risk}^{13})/13$$

$$\sum_{\text{Natural events}} = (\text{Preparedness}^1 + \text{Preparedness}^2 + \dots \text{Preparedness}^{13})/13$$

$$\sum_{\text{Accidents}} = (\text{Probability}^1 + \text{Probability}^2 + \dots \text{Probability}^{17})/17$$

$$\sum_{\text{Accidents}} = (\text{Risk}^1 + \text{Risk}^2 + \dots \text{Risk}^{17})/17$$

$$\sum_{\text{Accidents}} = (\text{Preparedness}^1 + \text{Preparedness}^2 + \dots \text{Preparedness}^{17})/17$$

The equalized probability levels are comparable across the hazard categories. The risk levels are greatest associated with natural hazards followed by terrorist/criminal events. Preparedness levels are highest for natural hazards with the remaining four bunched together.

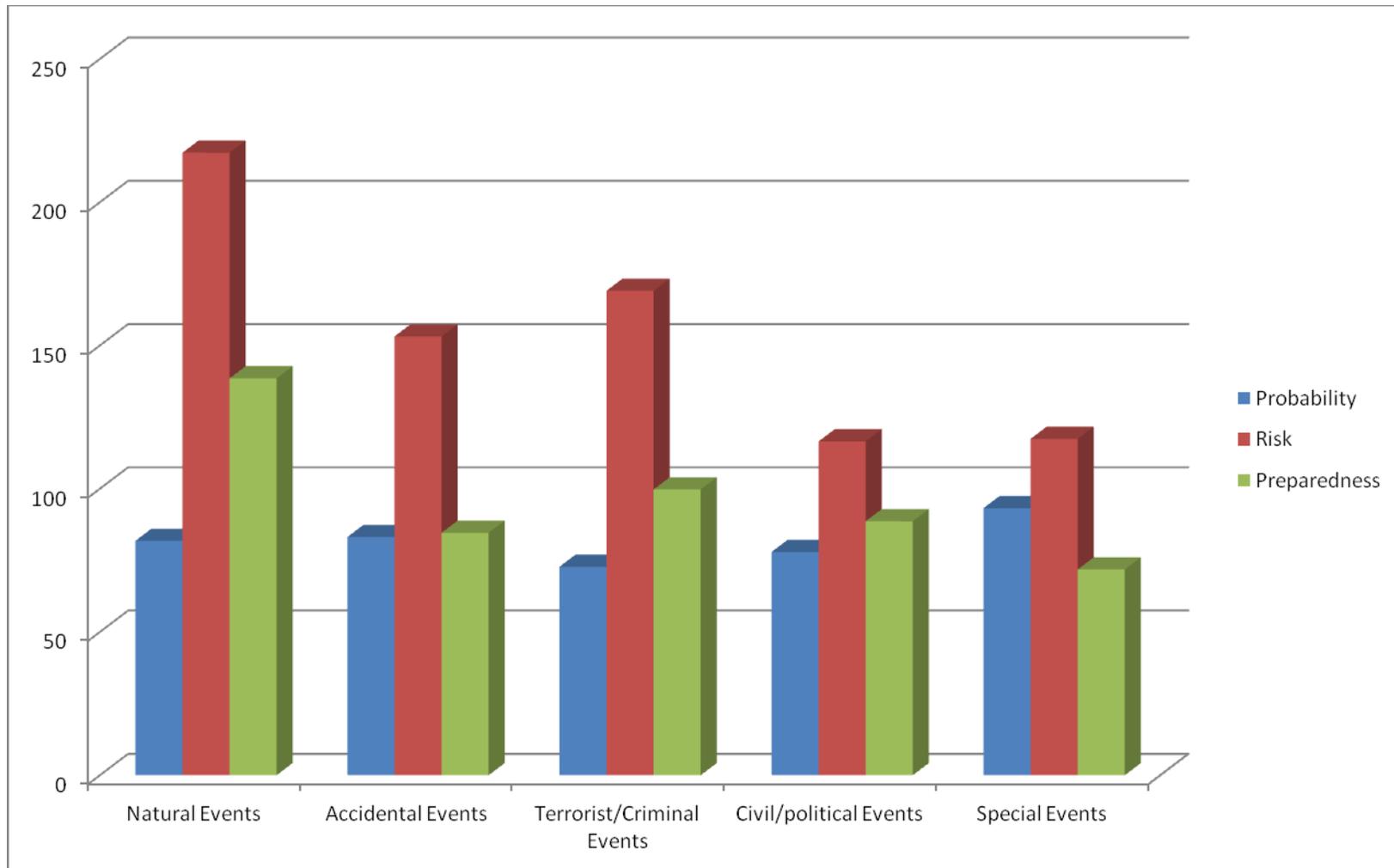


Figure 2 – Summary of Event Categories

Cumulative Assessment By Event Category

This section provides a summary of each of the events based upon probability, risk, and preparedness. The following tables are organized along the types of hazards (natural events, accidents, terrorist/criminal events, civil/political events, and special events). The larger the blue line the higher the probability. As the risk level increases the red line will become larger. Lower levels of preparedness are represented by larger green lines.

Natural Events

Natural events are threats linked to weather disasters and other naturally occurring events (see Figure 3 – Natural Events). The respondents reported the event with the greatest probability of occurring was thunderstorms (flooding was a close second). The results indicated that flooding also had the highest level of risk. The results suggest that earthquakes had the least level of preparedness. Conversely, earthquakes were seen as having the lowest level of probability and the risk of droughts were reported as being the lowest. Flooding was reported as having the greatest level of preparedness.

Accidental Event

Accidental events are hazards generally linked to industrial and commercial incidents; however these incidents were intended to be different from an intentional attack (see Figure 4 – Accidental Events). The respondents reported the greatest probability for an accident was transportation accidents on the highway. The greatest consequence was associated with a dam failure. The least amount of preparedness was also associated with a dam failure. Radiological/nuclear accidents were given the lowest probability of occurring. Water transportation accidents were given the lowest consequence. Preparedness for fires was given the highest level.

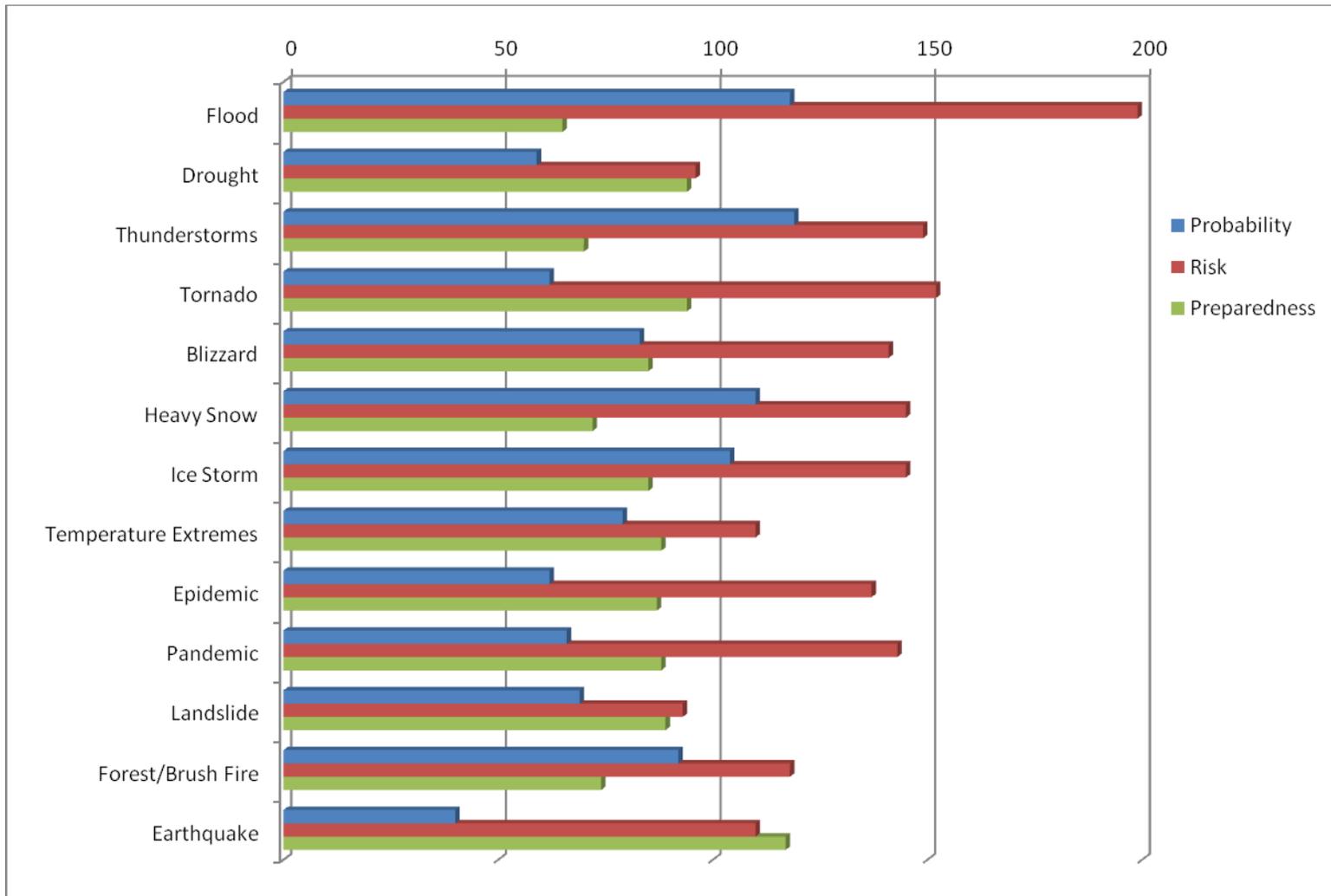


Figure 3 – Natural Events

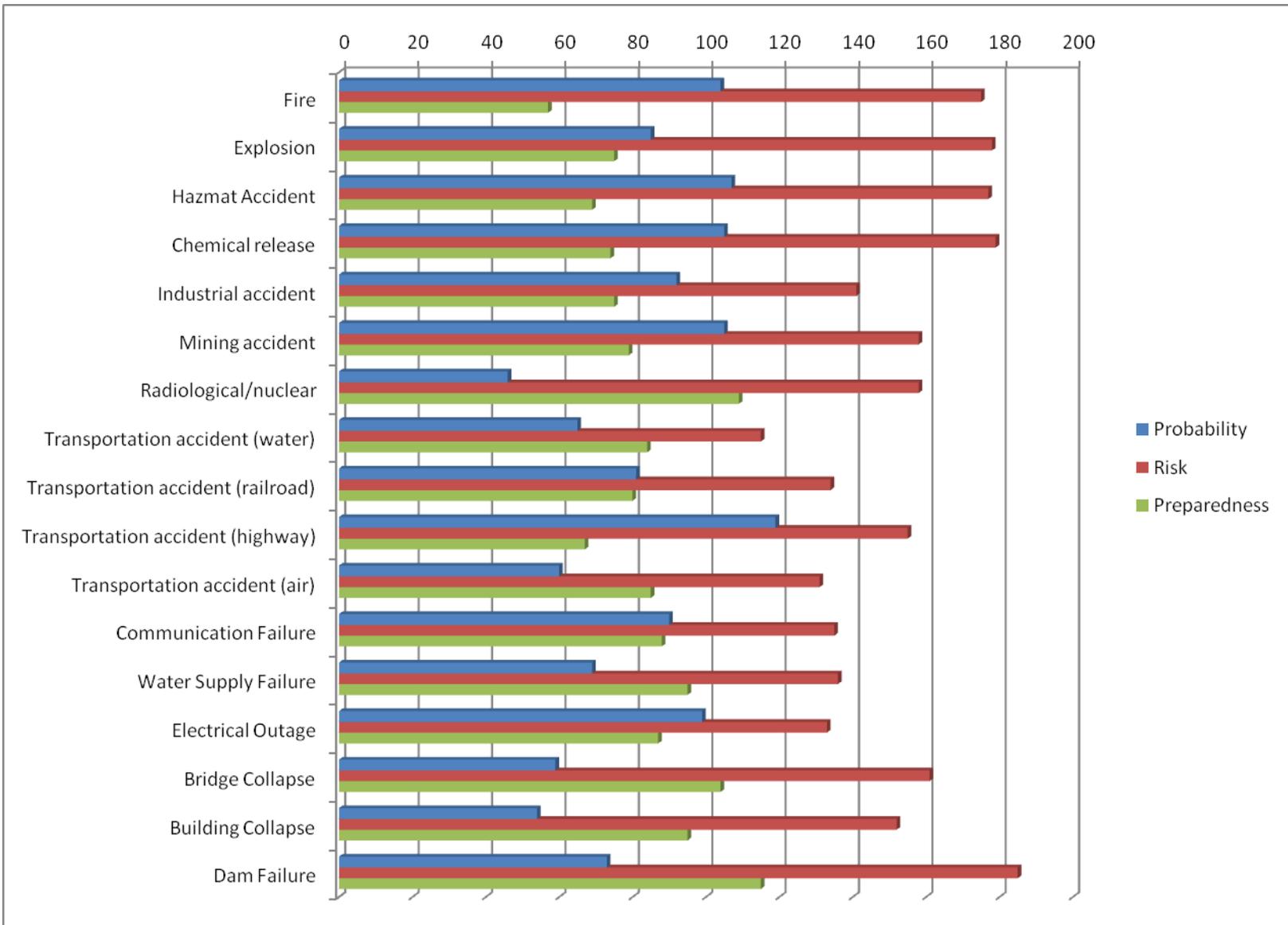


Figure 4 – Accidental Events

Terrorist/Criminal

The respondents reported the highest probability for a terrorist attack to be a suspicious parcel (see Figure 5 – Terrorist/Criminal Events). The highest risk was associated with food and water contamination. The least amount of preparedness was associated with electromagnetic pulse attacks. The respondents also reported the lowest probability associated with hostage taking. The lowest consequence was associated with electromagnetic pulse attacks. The respondents indicated the highest level of preparedness with suspicious parcels.

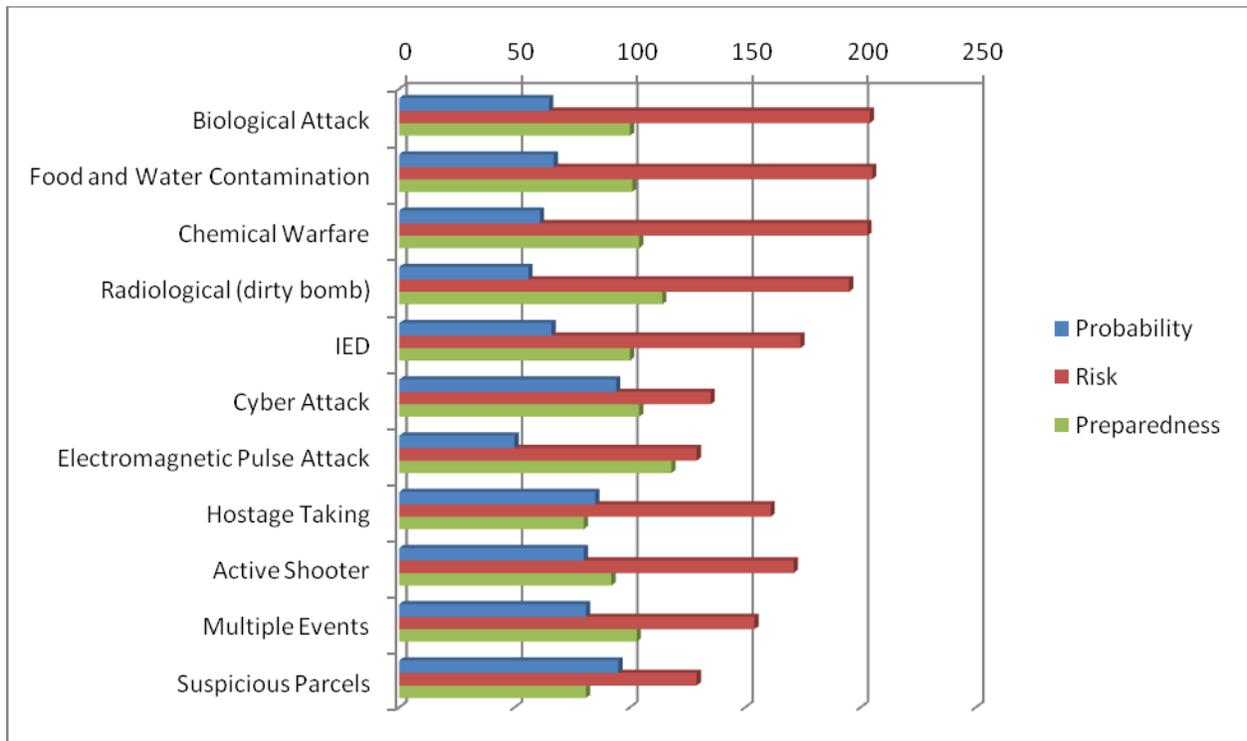


Figure 5 – Terrorist/Criminal Events

Civil/Political Events

The respondents reported that there was the greatest probability of a strike (see Figure 6 – Civil/Political Events). The shortage of medical supplies was identified as having the greatest risk. They reported the least amount of preparedness associated with the financial system collapse. The lowest probability of occurrence was with the financial system collapse. The respondents reported the lowest level of consequences associated with protests and public demonstrations. The highest level of preparedness was with public demonstrations.

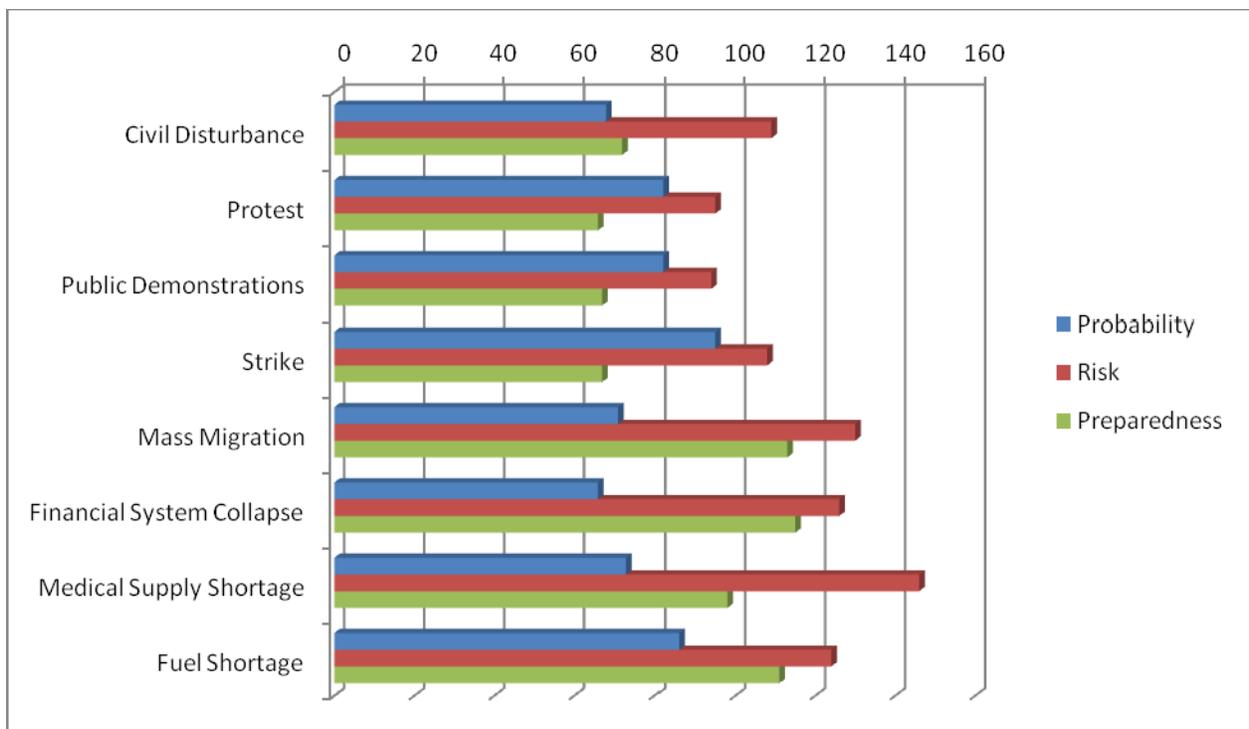


Figure 6 – Civil/Political Events

Special Events

The respondents reported the greatest probability being associated with dignitary visits (see Figure 7 – Special Events). Large festivals were identified as having the greatest risk. The least amount of preparedness was associated with major sporting events. The lowest probability of occurrence was reported as being major sporting events. Conferences and major sporting events were seen as having the lowest consequences. Dignitary visits were reported as having the highest level of preparedness.

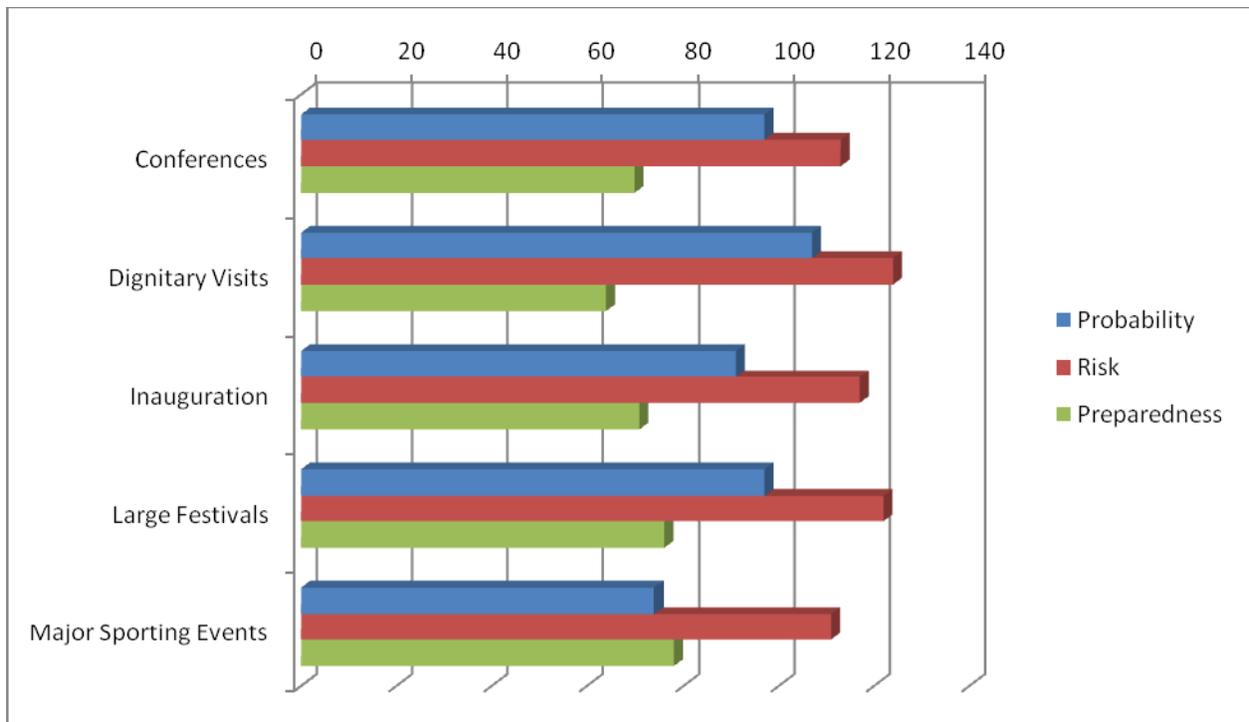


Figure 7 – Special Events

Risk Factor Calculation

The final step in the hazard vulnerability assessment is to develop an overall ranking. A total of 54 hazards were evaluated. The process involves multiplying the individual scores for probability, risk, and preparedness together. The following equations were used to develop the risk factor.

$$\begin{aligned}\Sigma \text{Hazard}^1 &= (\text{Probability}^1 \times \text{Risk}^1 \times \text{Preparedness}^1) \\ \Sigma \text{Hazard}^2 &= (\text{Probability}^2 \times \text{Risk}^2 \times \text{Preparedness}^2) \\ \Sigma \text{Hazard}^{54} &= (\text{Probability}^{54} \times \text{Risk}^{54} \times \text{Preparedness}^{54})\end{aligned}$$

Listing the hazards in descending order of the total scores provides a prioritization of the hazards facing Kanawha and Putnam Counties (see Figure 8 – Risk Factor). It is recommended that the KPEPC and its member organizations evaluate this final prioritization and determine a score below which no action is necessary. The focus should be on the hazards of highest priority. The following table (see Table 7 – Top Ten Ranked Risks) lists the top ten ranked hazards for 2010 and the rankings for the same hazards in 2008 and 2007 (see Appendix 3 – Risk Scores).

Event	2010 Rank	2008 Rank	2007 Rank
Dam Failure	1	--	--
Flood	2	11	22
Chemical release	3	2	10
Food and Water Contamination	4	--	--
Biological attack (CBRNE)	5	8	11
Cyber Attack	6	18	21
Mining Accident	7	7	3
Hazmat Accident	8	1	5
Chemical warfare (CBRNE)	9	8	11
Multiple Events	10	--	--

Table 7 – Top Ten Ranked Risks

Risk Factor

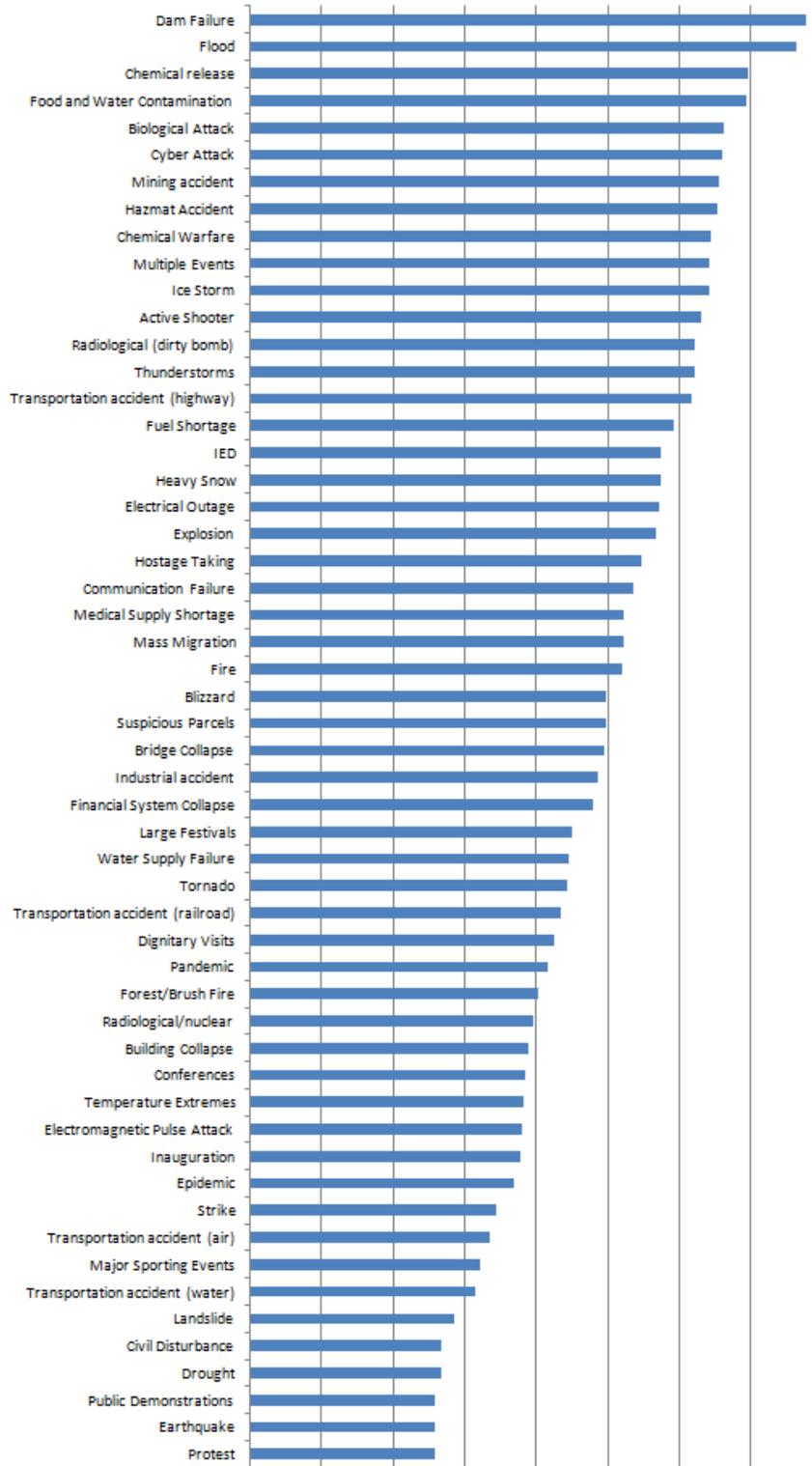


Figure 8 – Risk Factor

Discussion and Recommendations

The KPEPC should specifically compare the results of this hazard vulnerability assessment to the status of the Kanawha Putnam Emergency Management Plan. This evaluation should include updating the hazard ranking in the plan and to ensure that all of the hazards identified in this hazard vulnerability assessment are adequately addressed in the Kanawha Putnam Emergency Management Plan.

Over the last year a great deal of emphasis has been placed on the potential failure of the Bluestone Dam. This focus, at both a local and a state-level, likely explains the level of concern placed on dam failure. While the Kanawha Putnam Emergency Management Plan contains annexes addressing both dam failure and biological incidents, the KPEPC should evaluate the content of these plan elements to determine if revisions are warranted.

The results indicate that food and water contamination is also considered to be a top threat facing Kanawha and Putnam Counties. Currently, the Kanawha Putnam Emergency Management Plan does not include any reference to food or water contamination. The KPEPC should consider the relevance of developing an annex to address this issue.

Appendix 1 – Hazard Vulnerability Assessment Events

2010 Categories	2008 Categories
Flood	Flood
Drought	Drought
Thunderstorms/High Winds	Thunderstorms/High Winds
Tornado	Tornado
Blizzard	Blizzard
Heavy Snow	Heavy Snow
Ice Storm	Ice Storm
Temperature Extremes	Temperature Extremes
Epidemic	Epidemic
Pandemic	Pandemic
Landslide	Landslide
Forest/Brush Fire	Forest/Brush Fire
Earthquake	Earthquake
Fire	Fire
Explosion	Explosion
Hazmat Accident	Hazmat Accident
Chemical release	Chemical release
Industrial accident	Industrial accident
Mining accident	Mining accident
Radiological/nuclear	Radiological/nuclear
Transportation accident (water)	Transportation accident (water)
Transportation accident (railroad)	Transportation accident (railroad)
Transportation accident (highway)	Transportation accident (highway)
Transportation accident (air)	Transportation accident (air)
Communication Failure	N/A
Water Supply Failure	Utility Outage
Electrical Outage	
Bridge Collapse	Structural Collapse
Building Collapse	
Dam Failure	N/A
Food and Water Contamination	N/A
Biological Attack	CBRNE Attack
Chemical Warfare	
Radiological (dirty bomb)	

IED	
Cyber Attack	Cyber Attack
Electromagnetic Pulse Attack	N/A
Hostage Taking	Other (Hostage, etc)
Active Shooter	N/A
Multiple Events	N/A
Suspicious Parcels	N/A
Civil Disturbance	Civil Disturbance
Protest	Protest
Public Demonstrations	Public Demonstrations
Strike	Strike
Mass Migration	Mass Migration
Financial System Collapse	N/A
Medical Supply Shortage	N/A
Fuel Shortage	N/A
Conferences	Conferences
Dignitary Visits	Dignitary Visits
Inauguration	Inauguration
Large Festivals	Large Festivals
Major Sporting Events	Major Sporting Events

Appendix 2 – Probability Scores

Event	Probability				
	None	Low	Medium	High	Total
Score	0	1	2	3	
Flood	0	5	13	29	118
Drought	3	31	11	2	59
Thunderstorms	0	1	20	26	119
Tornado	1	30	16	0	62
Blizzard	0	14	30	3	83
Heavy Snow	0	1	29	17	110
Ice Storm	0	4	29	14	104
Temperature Extremes	0	20	22	5	79
Epidemic	2	31	11	3	62
Pandemic	1	28	16	2	66
Landslide	2	24	18	3	69
Forest/Brush Fire	0	12	25	10	92
Earthquake	9	36	2	0	40
Fire	0	9	19	19	104
Explosion	1	15	23	8	85
Hazmat Accident	0	6	22	19	107
Chemical release	0	8	20	19	105
Industrial accident	0	12	25	10	92
Mining accident	2	5	20	20	105
Radiological/nuclear	9	31	6	1	46
Transportation accident (water)	1	30	13	3	65
Transportation accident (railroad)	1	17	23	6	81
Transportation accident (highway)	0	2	18	27	119
Transportation accident (air)	0	36	9	2	60
Communication Failure	0	15	21	11	90

Water Supply Failure	0	28	16	3	69
Electrical Outage	0	13	16	18	99
Bridge Collapse	2	33	10	2	59
Building Collapse	3	36	6	2	54
Dam Failure	1	23	19	4	73
Biological Attack	1	28	17	1	65
Food and Water Contamination	1	27	17	2	67
Chemical Warfare	1	32	13	1	61
Radiological (dirty bomb)	1	36	10	0	56
IED	1	29	14	3	66
Cyber Attack	1	11	22	13	94
Electromagnetic Pulse Attack	4	36	7	0	50
Hostage Taking	1	17	19	10	85
Active Shooter	1	16	26	4	80
Multiple Events	0	21	18	8	81
Suspicious Parcels	0	12	22	13	95
Civil Disturbance	1	27	16	3	68
Protest	0	19	21	7	82
Public Demonstrations	0	19	21	7	82
Strike	0	10	26	11	95
Mass Migration	1	27	13	6	71
Financial System Collapse	1	28	16	2	66
Medical Supply Shortage	0	26	16	5	73
Fuel Shortage	0	14	27	6	86
Conferences	0	17	10	20	97
Dignitary Visits	0	10	14	23	107
Inauguration	1	15	17	14	91
Large Festivals	0	13	18	16	97
Major Sporting Events	2	23	15	7	74

Appendix 3 – Risk Scores

Score	Risk					Total
	1	2	3	4	5	
Event	Low	Moderate	High	Safety	Life	Total
Flood	1	4	3	14	25	199
Drought	20	15	3	8	1	96
Thunderstorms	0	12	18	14	3	149
Tornado	5	14	8	5	15	152
Blizzard	4	15	8	17	3	141
Heavy Snow	0	17	11	17	2	145
Ice Storm	1	15	12	17	2	145
Temperature Extremes	10	24	3	7	3	110
Epidemic	11	11	5	11	9	137
Pandemic	12	8	4	12	11	143
Landslide	18	17	7	5	0	93
Forest/Brush Fire	4	25	10	6	2	118
Earthquake	19	10	6	7	5	110
Fire	1	12	7	6	21	175
Explosion	4	8	6	5	24	178
Hazmat Accident	3	4	8	18	14	177
Chemical release	1	5	9	19	13	179
Industrial accident	4	15	12	9	7	141
Mining accident	7	10	5	9	16	158
Radiological/nuclear	9	6	6	11	15	158
Transportation accident (water)	11	18	6	10	2	115
Transportation accident (railroad)	6	16	7	15	3	134
Transportation accident (highway)	2	14	9	12	10	155
Transportation accident (air)	12	13	6	5	11	131
Communication Failure	1	19	16	7	4	135
Water Supply Failure	6	15	7	16	3	136
Electrical Outage	5	17	9	13	3	133
Bridge Collapse	7	10	6	4	20	161
Building Collapse	8	11	6	6	16	152

Dam Failure	6	4	4	6	27	185
Biological Attack	2	2	2	13	28	204
Food and Water Contamination	1	3	2	13	28	205
Chemical Warfare	1	3	4	11	28	203
Radiological (dirty bomb)	2	4	4	12	25	195
IED	4	8	9	3	23	174
Cyber Attack	3	12	23	6	3	135
Electromagnetic Pulse Attack	9	10	16	8	4	129
Hostage Taking	6	8	10	6	17	161
Active Shooter	2	11	9	5	20	171
Multiple Events	2	12	14	9	10	154
Suspicious Parcels	6	17	11	9	4	129
Civil Disturbance	9	24	4	10	0	109
Protest	14	23	5	5	0	95
Public Demonstrations	17	19	5	6	0	94
Strike	10	18	14	5	0	108
Mass Migration	9	9	14	14	1	130
Financial System Collapse	6	8	28	5	0	126
Medical Supply Shortage	6	11	10	12	8	146
Fuel Shortage	4	16	21	5	1	124
Conferences	16	11	8	9	3	113
Dignitary Visits	10	15	10	6	6	124
Inauguration	13	13	10	7	4	117
Large Festivals	10	14	11	9	3	122
Major Sporting Events	15	13	8	9	2	111

Appendix 4 – Preparedness Scores

Score	Preparedness			Total
	1	2	3	
Event	Good	Fair	Poor	Total
Flood	30	16	1	65
Drought	12	23	12	94
Thunderstorms	24	23	0	70
Tornado	7	33	7	94
Blizzard	12	32	3	85
Heavy Snow	25	19	3	72
Ice Storm	15	26	6	85
Temperature Extremes	12	29	6	88
Epidemic	14	26	7	87
Pandemic	14	25	8	88
Landslide	13	26	8	89
Forest/Brush Fire	21	25	1	74
Earthquake	2	20	25	117
Fire	37	10	0	57
Explosion	20	26	1	75
Hazmat Accident	29	14	4	69
Chemical release	23	21	3	74
Industrial accident	21	24	2	75
Mining accident	21	20	6	79
Radiological/nuclear	7	18	22	109
Transportation accident (water)	15	27	5	84
Transportation accident (railroad)	19	23	5	80
Transportation accident (highway)	30	14	3	67
Transportation accident (air)	12	32	3	85
Communication Failure	13	27	7	88
Water Supply Failure	10	26	11	95
Electrical Outage	10	34	3	87
Bridge Collapse	7	23	17	104
Building Collapse	10	26	11	95

Dam Failure	3	20	24	115
Biological Attack	8	25	14	100
Food and Water Contamination	6	28	13	101
Chemical Warfare	6	25	16	104
Radiological (dirty bomb)	2	23	22	114
IED	6	26	14	100
Cyber Attack	6	25	16	104
Electromagnetic Pulse Attack	2	19	26	118
Hostage Taking	19	23	5	80
Active Shooter	10	29	8	92
Multiple Events	5	28	14	103
Suspicious Parcels	16	28	3	81
Civil Disturbance	24	21	2	72
Protest	30	15	2	66
Public Demonstrations	30	14	3	67
Strike	30	14	3	67
Mass Migration	5	18	24	113
Financial System Collapse	2	22	23	115
Medical Supply Shortage	4	35	8	98
Fuel Shortage	2	26	19	111
Conferences	26	19	2	70
Dignitary Visits	31	15	1	64
Inauguration	25	20	2	71
Large Festivals	20	25	2	76
Major Sporting Events	20	23	4	78

Appendix 5 – Risk Rankings

Event	2010 Rank	2008 Rank	2007 Rank
Dam Failure	1	NEW in 2010	NEW in 2010
Flood	2	11	22
Chemical release (industrial accident)	3	2	10
Food and Water Contamination	4	NEW in 2010	NEW in 2010
Biological Attack	5	8 (CBRNE)	11 (CBRNE)
Cyber Attack	6	18	21
Mining accident	7	7	3
Hazmat Accident	8	1	5
Chemical Warfare	9	8 (CBRNE)	11 (CBRNE)
Multiple Events	10	NEW in 2010	NEW in 2010
Ice Storm	11	19	14
Active Shooter	12	NEW in 2010	NEW in 2010
Radiological (dirty bomb)	13	8 (CBRNE)	11 (CBRNE)
Thunderstorms	14	15	15
Transportation accident (highway)	15	4	3
Fuel Shortage	16	NEW in 2010	NEW in 2010
IED	17	NEW in 2010	NEW in 2010
Heavy Snow	18	24	18
Electrical Outage	19	15	15
Explosion	20	3	7
Hostage Taking	21	22	34
Communication Failure	22	NEW in 2010	NEW in 2010
Medical Supply Shortage	23	NEW in 2010	NEW in 2010
Mass Migration	24	26	25
Fire	25	5	8
Blizzard	26	29	23
Suspicious Parcels	27	NEW in 2010	NEW in 2010
Bridge Collapse	28	17	15
Industrial accident	29	10	19
Financial System Collapse	30	NEW in 2010	NEW in 2010
Large Festivals	31	28	25
Water Supply Failure	32	NEW in 2010	NEW in 2010
Tornado	33	21	13
Transportation accident (railroad)	34	12	11
Dignitary Visits	35	31	29
Pandemic	36	8	1

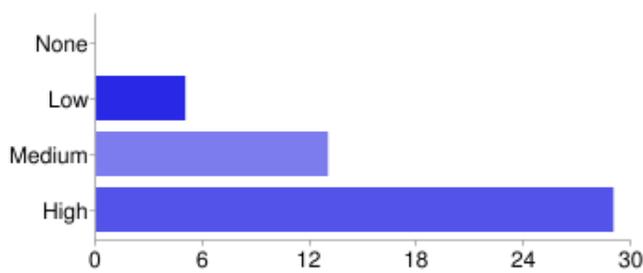
Forest/Brush Fire	37	23	19
Radiological/nuclear	38	5	9
Building Collapse	39	17	15
Conferences	40	30	33
Electromagnetic Pulse Attack	41	NEW in 2010	NEW in 2010
Temperature Extremes	42	33	23
Inauguration	43	36	36
Epidemic	44	14	2
Strike	45	38	34
Transportation accident (air)	46	12	5
Major Sporting Events	47	34	29
Transportation accident (water)	48	12	5
Landslide	49	35	31
Civil Disturbance	50	39	37
Drought	51	36	32
Public Demonstrations	52	24	38
Earthquake	53	31	27
Protest	54	26	38

Appendix 6 – Detailed Charts

Natural Events

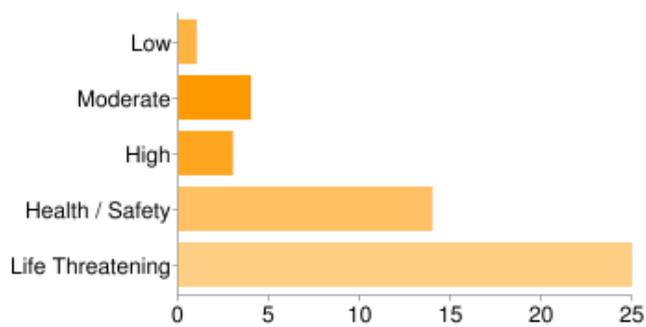
Floods

Probability - Natural Events - Flood



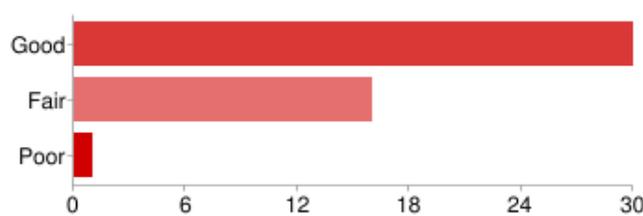
None	0	0%
Low	5	11%
Medium	13	28%
High	29	62%

Consequence - Natural Events - Flood



Low	1	2%
Moderate	4	9%
High	3	6%
Health / Safety	14	30%
Life Threatening	25	53%

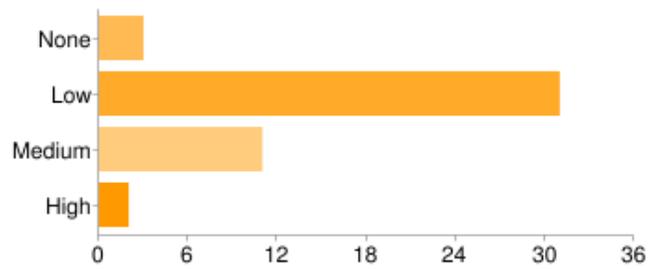
Preparedness - Natural Events - Flood



Good	30	64%
Fair	16	34%
Poor	1	2%

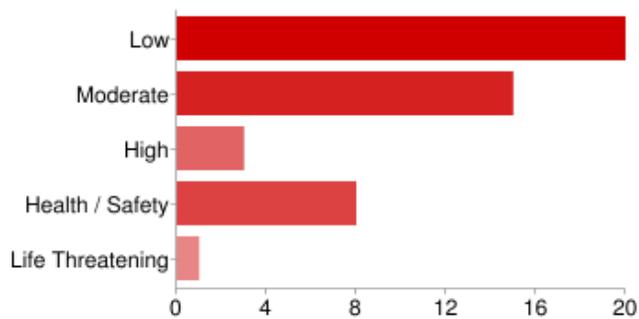
Drought

Probability - Natural Events - Drought



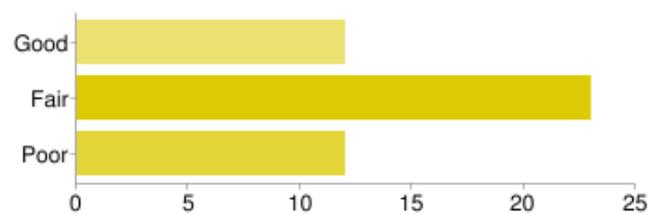
None	3	6%
Low	31	66%
Medium	11	23%
High	2	4%

Consequence - Natural Events - Drought



Low	20	43%
Moderate	15	32%
High	3	6%
Health / Safety	8	17%
Life Threatening	1	2%

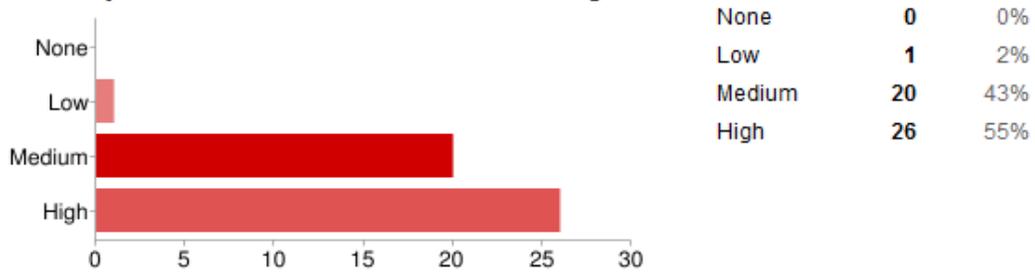
Preparedness - Natural Events - Drought



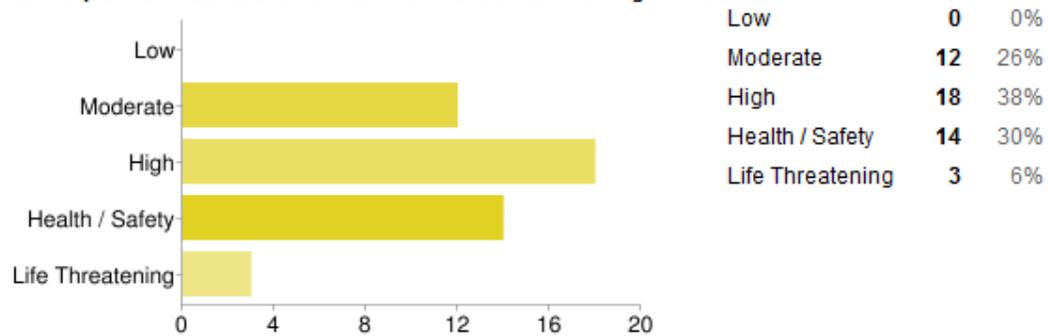
Good	12	26%
Fair	23	49%
Poor	12	26%

Severe Thunderstorm or High Winds

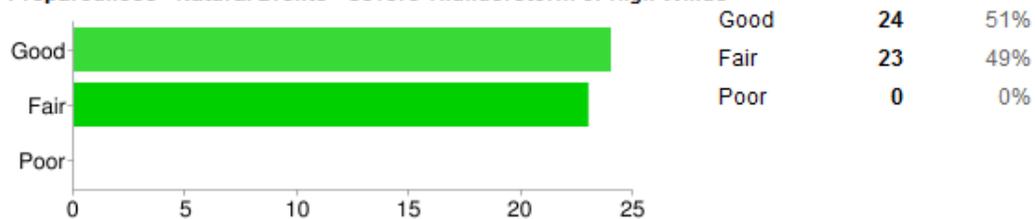
Probability - Natural Events - Severe Thunderstorm or High Winds



Consequence - Natural Events - Severe Thunderstorm or High Winds

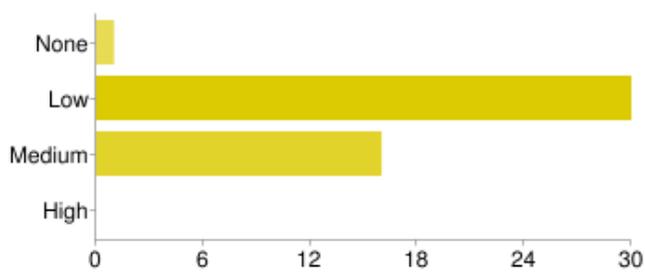


Preparedness - Natural Events - Severe Thunderstorm or High Winds



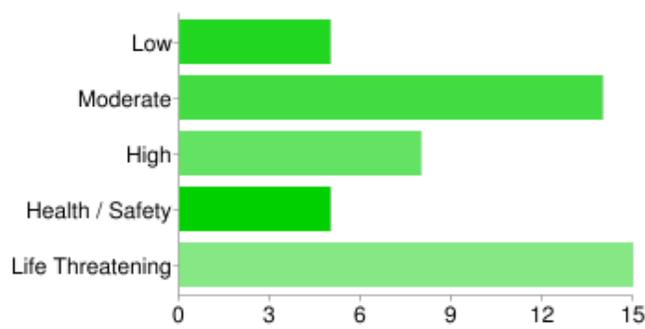
Tornado

Probability - Natural Events - Tornado



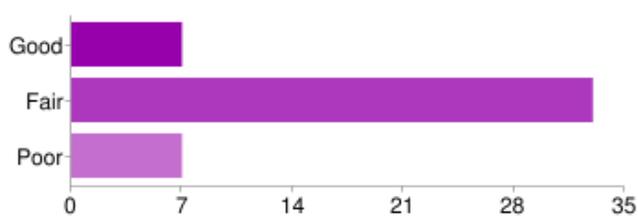
None	1	2%
Low	30	64%
Medium	16	34%
High	0	0%

Consequence - Natural Events - Tornado



Low	5	11%
Moderate	14	30%
High	8	17%
Health / Safety	5	11%
Life Threatening	15	32%

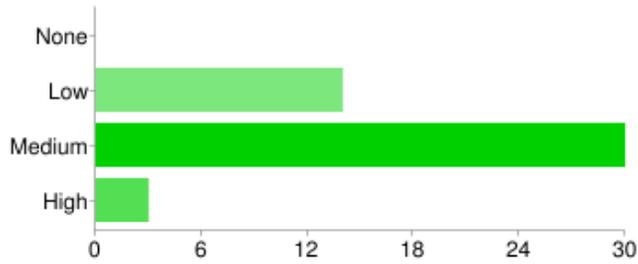
Preparedness - Natural Events - Tornado



Good	7	15%
Fair	33	70%
Poor	7	15%

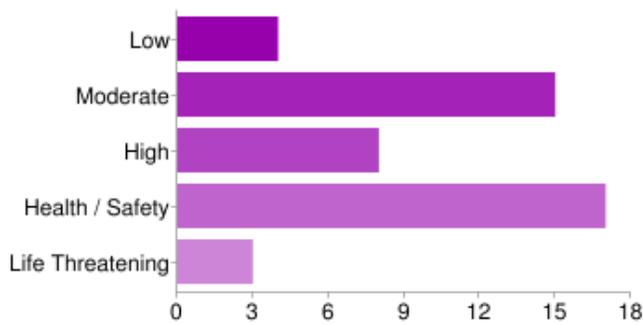
Blizzard

Probability - Natural Events - Blizzard



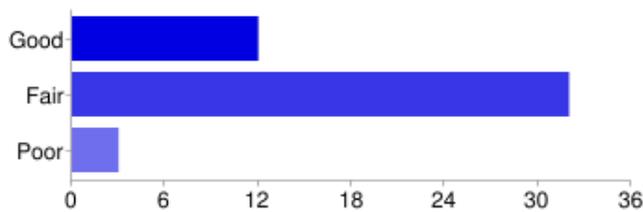
None	0	0%
Low	14	30%
Medium	30	64%
High	3	6%

Consequence - Natural Events - Blizzard



Low	4	9%
Moderate	15	32%
High	8	17%
Health / Safety	17	36%
Life Threatening	3	6%

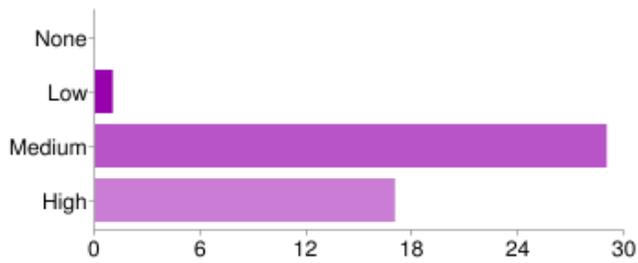
Preparedness - Natural Events - Blizzard



Good	12	26%
Fair	32	68%
Poor	3	6%

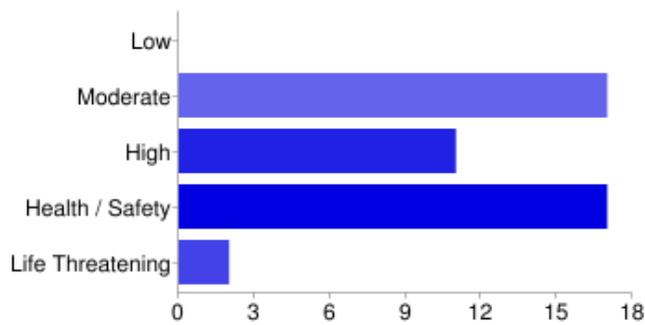
Heavy Snow

Probability - Natural Events - Heavy Snow



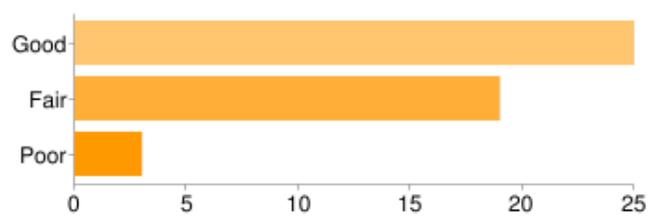
None	0	0%
Low	1	2%
Medium	29	62%
High	17	36%

Consequence - Natural Events - Heavy Snow



Low	0	0%
Moderate	17	36%
High	11	23%
Health / Safety	17	36%
Life Threatening	2	4%

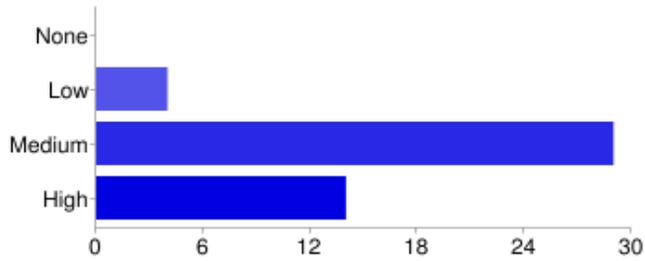
Preparedness - Natural Events - Heavy Snow



Good	25	53%
Fair	19	40%
Poor	3	6%

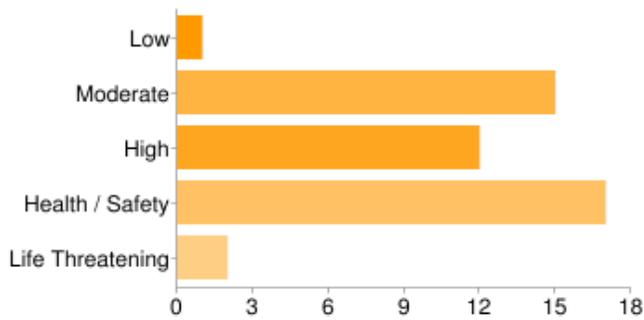
Ice Storm

Probability - Natural Events - Ice Storm



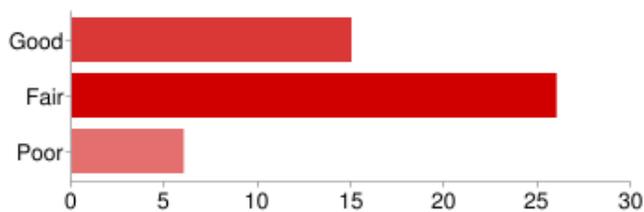
None	0	0%
Low	4	9%
Medium	29	62%
High	14	30%

Consequence - Natural Events - Ice Storm



Low	1	2%
Moderate	15	32%
High	12	26%
Health / Safety	17	36%
Life Threatening	2	4%

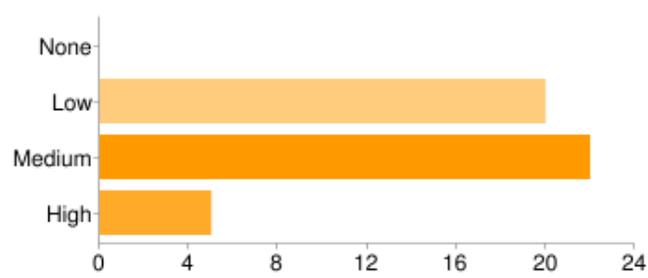
Preparedness - Natural Events - Ice Storm



Good	15	32%
Fair	26	55%
Poor	6	13%

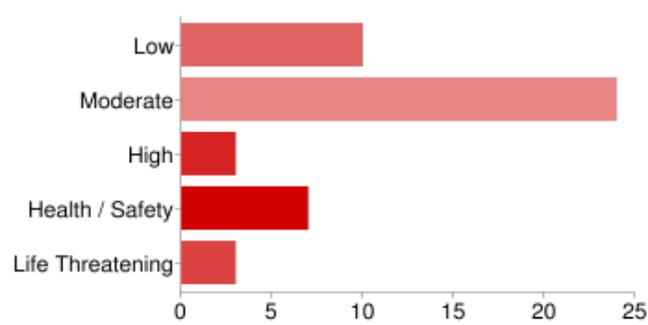
Temperature Extremes

Probability - Natural Events - Temperature Extremes



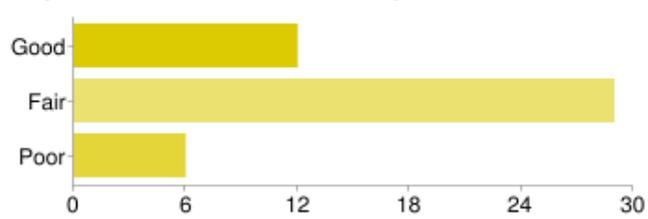
None	0	0%
Low	20	43%
Medium	22	47%
High	5	11%

Consequence - Natural Events - Temperature Extremes



Low	10	21%
Moderate	24	51%
High	3	6%
Health / Safety	7	15%
Life Threatening	3	6%

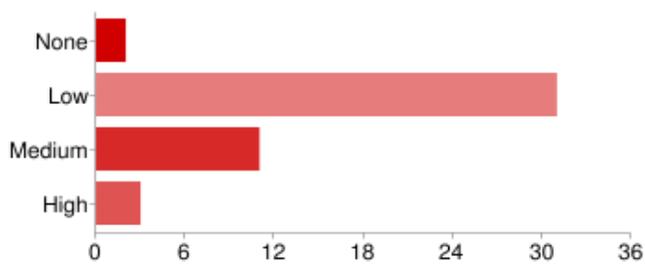
Preparedness - Natural Events - Temperature Extremes



Good	12	26%
Fair	29	62%
Poor	6	13%

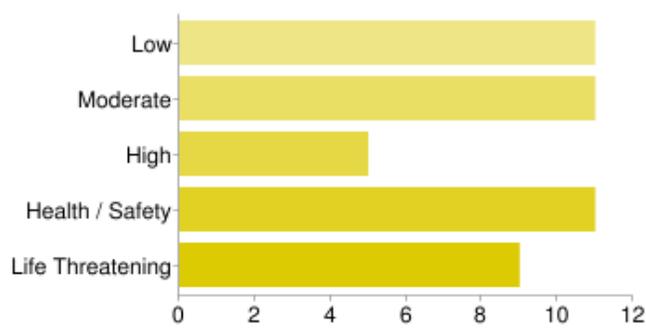
Epidemic

Probability - Natural Events - Epidemic



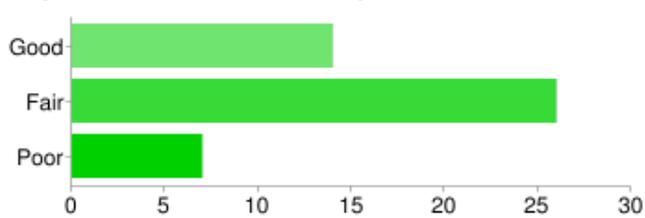
None	2	4%
Low	31	66%
Medium	11	23%
High	3	6%

Consequence - Natural Events - Epidemic



Low	11	23%
Moderate	11	23%
High	5	11%
Health / Safety	11	23%
Life Threatening	9	19%

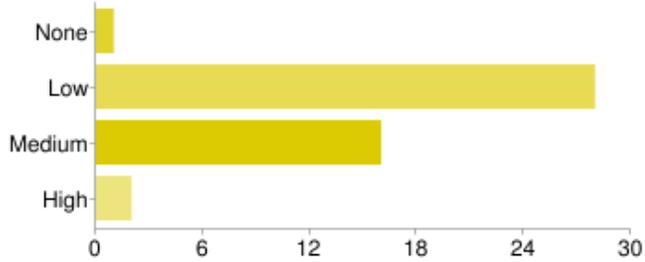
Preparedness - Natural Events - Epidemic



Good	14	30%
Fair	26	55%
Poor	7	15%

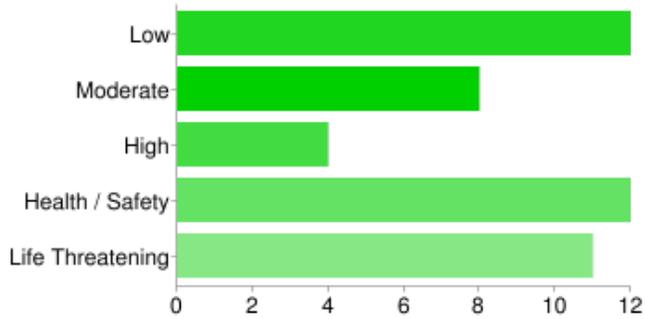
Pandemic

Probability - Natural Events - Pandemic



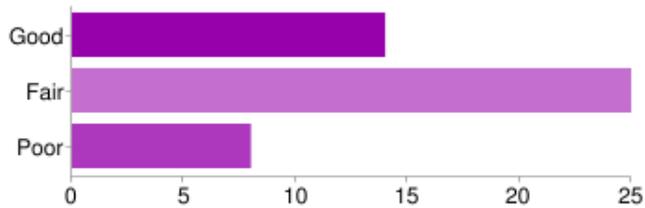
None	1	2%
Low	28	60%
Medium	16	34%
High	2	4%

Consequence - Natural Events - Pandemic



Low	12	26%
Moderate	8	17%
High	4	9%
Health / Safety	12	26%
Life Threatening	11	23%

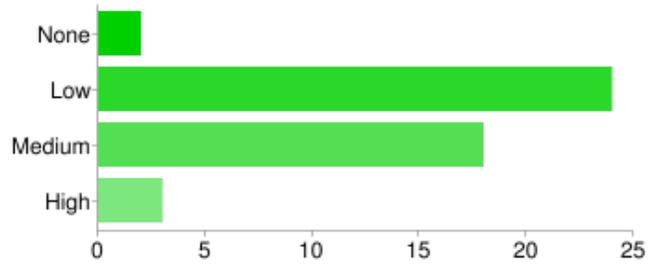
Preparedness - Natural Events - Pandemic



Good	14	30%
Fair	25	53%
Poor	8	17%

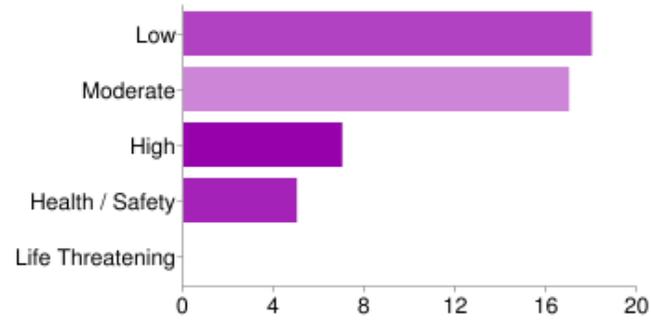
Landslide

Probability - Natural Events - Landslide



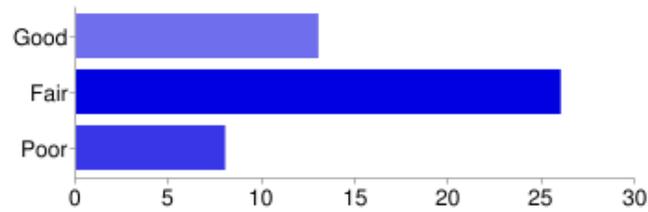
None	2	4%
Low	24	51%
Medium	18	38%
High	3	6%

Consequence - Natural Events - Landslide



Low	18	38%
Moderate	17	36%
High	7	15%
Health / Safety	5	11%
Life Threatening	0	0%

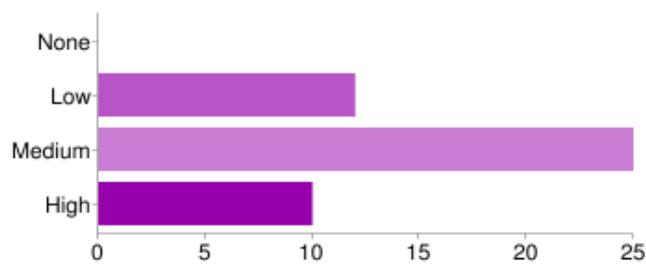
Preparedness - Natural Events - Landslide



Good	13	28%
Fair	26	55%
Poor	8	17%

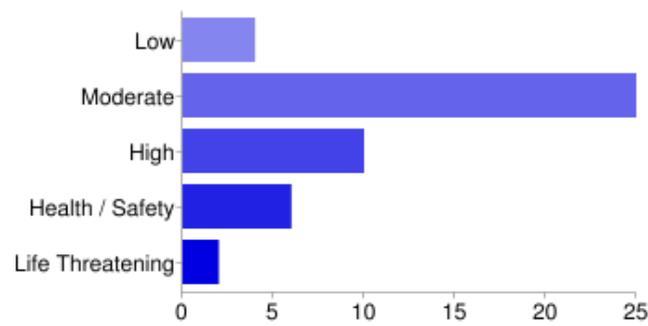
Forest or Brush Fire

Probability - Natural Events - Forest or Brush Fire



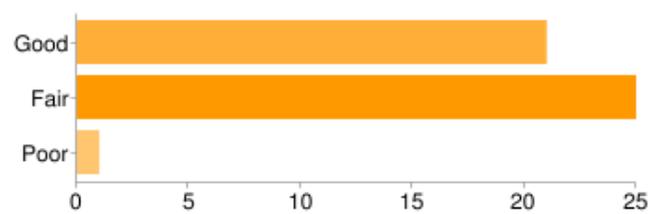
None	0	0%
Low	12	26%
Medium	25	53%
High	10	21%

Consequence - Natural Events - Forest or Brush Fire



Low	4	9%
Moderate	25	53%
High	10	21%
Health / Safety	6	13%
Life Threatening	2	4%

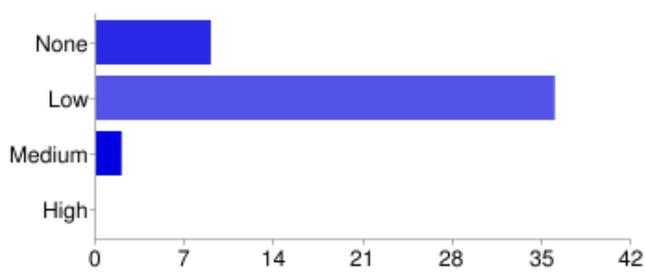
Preparedness - Natural Events - Forest or Brush Fire



Good	21	45%
Fair	25	53%
Poor	1	2%

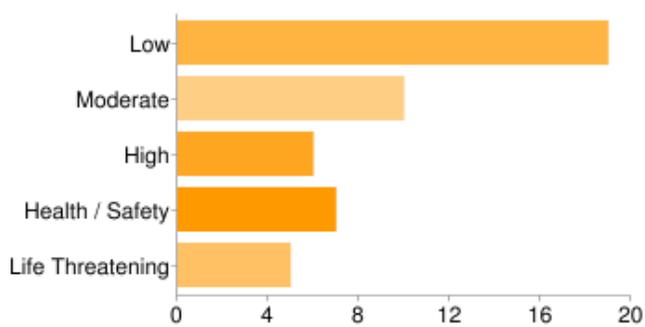
Earthquake

Probability - Natural Events - Earthquake



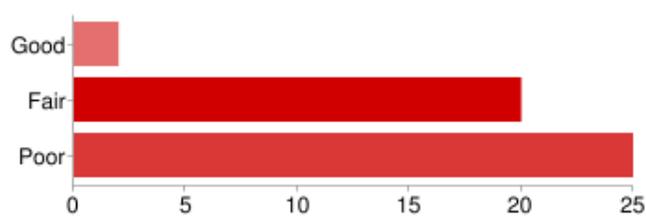
None	9	19%
Low	36	77%
Medium	2	4%
High	0	0%

Consequence - Natural Events - Earthquake



Low	19	40%
Moderate	10	21%
High	6	13%
Health / Safety	7	15%
Life Threatening	5	11%

Preparedness - Natural Events - Earthquake

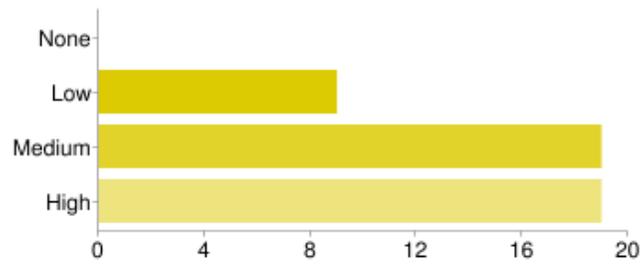


Good	2	4%
Fair	20	43%
Poor	25	53%

Accidental Incidents

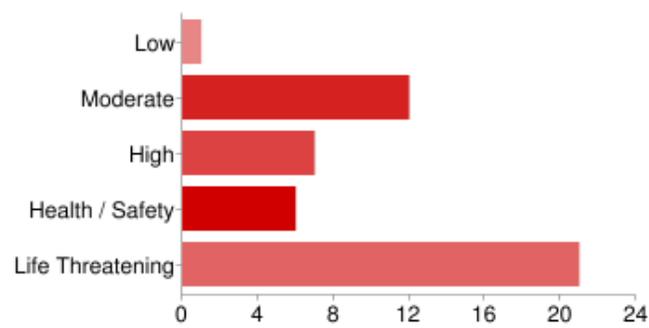
Fire

Probability - Accidental Events - Fire



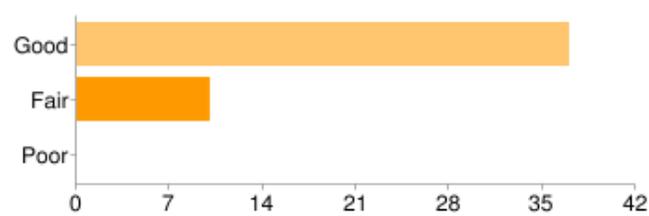
None	0	0%
Low	9	19%
Medium	19	40%
High	19	40%

Consequence - Accidental Events - Fire



Low	1	2%
Moderate	12	26%
High	7	15%
Health / Safety	6	13%
Life Threatening	21	45%

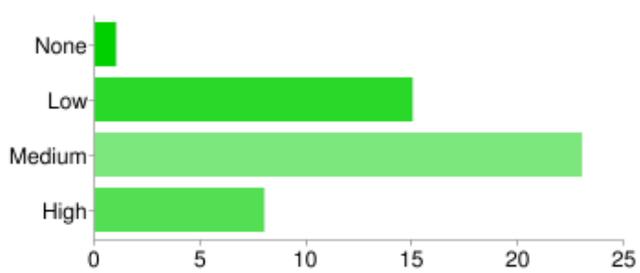
Preparedness - Accidental Events - Fire



Good	37	79%
Fair	10	21%
Poor	0	0%

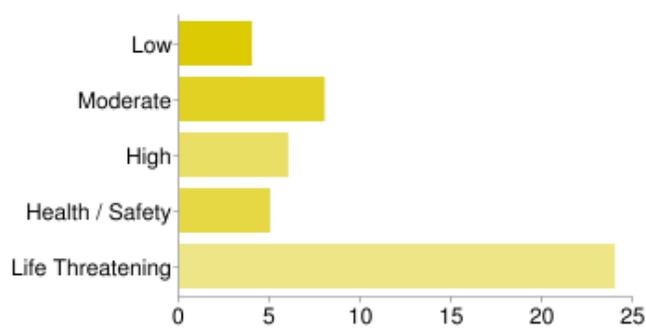
Explosion

Probability - Accidental Events - Explosion



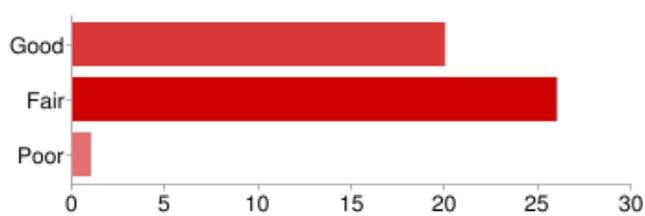
None	1	2%
Low	15	32%
Medium	23	49%
High	8	17%

Consequence - Accidental Events - Explosion



Low	4	9%
Moderate	8	17%
High	6	13%
Health / Safety	5	11%
Life Threatening	24	51%

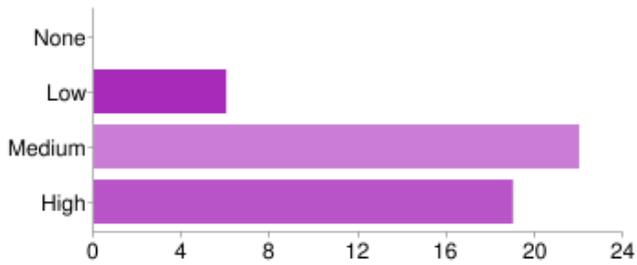
Preparedness - Accidental Events - Explosion



Good	20	43%
Fair	26	55%
Poor	1	2%

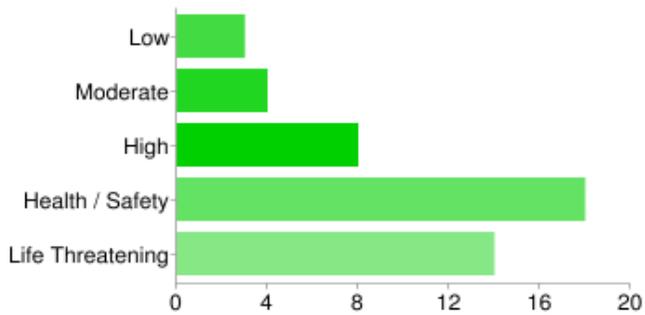
Hazardous Materials Accident

Probability - Accidental Events - Haz Mat Accident



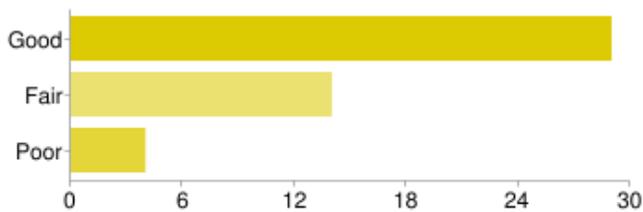
None	0	0%
Low	6	13%
Medium	22	47%
High	19	40%

Consequence - Accidental Events - Haz Mat Accident



Low	3	6%
Moderate	4	9%
High	8	17%
Health / Safety	18	38%
Life Threatening	14	30%

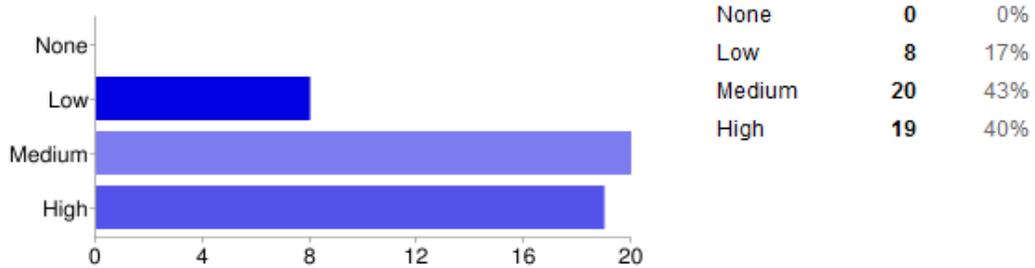
Preparedness - Accidental Events - Haz Mat Accident



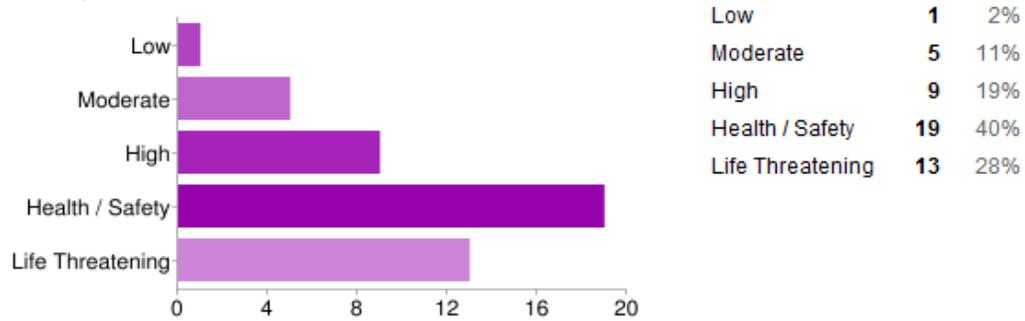
Good	29	62%
Fair	14	30%
Poor	4	9%

Industrial Accident – Chemical Release

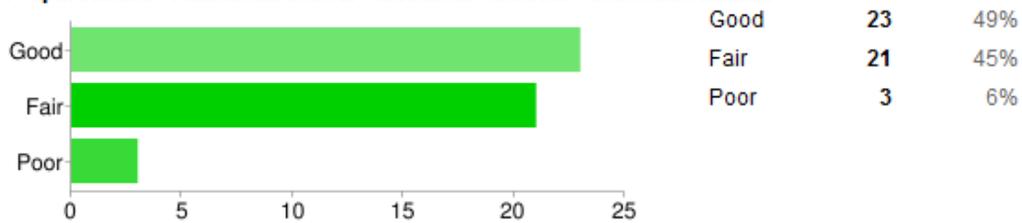
Probability - Accidental Events - Industrial Accident - Chemical Release



Consequence - Accidental Events - Industrial Accident - Chemical Release

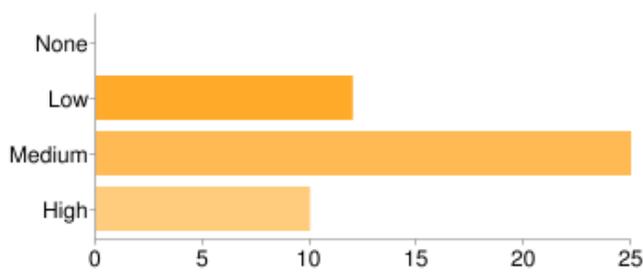


Preparedness - Accidental Events - Industrial Accident - Chemical Release



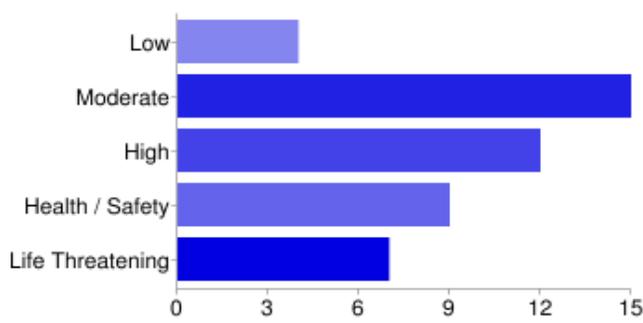
Industrial Accident – Other

Probability - Accidental Events - Industrial Accident - Other



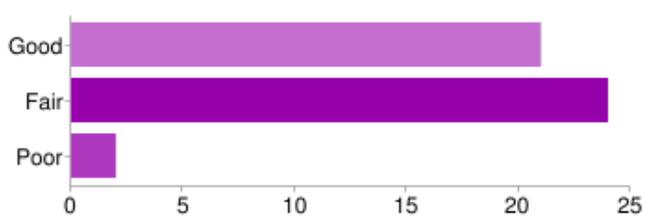
None	0	0%
Low	12	26%
Medium	25	53%
High	10	21%

Consequence - Accidental Events - Industrial Accident - Other



Low	4	9%
Moderate	15	32%
High	12	26%
Health / Safety	9	19%
Life Threatening	7	15%

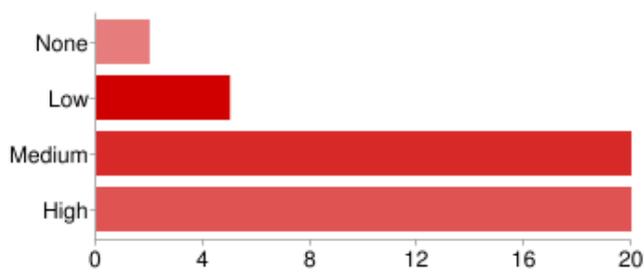
Preparedness - Accidental Events - Industrial Accident - Other



Good	21	45%
Fair	24	51%
Poor	2	4%

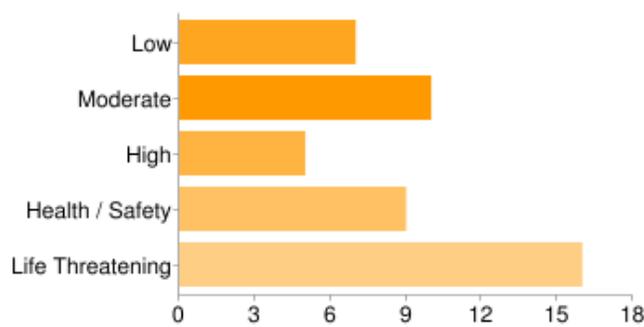
Mining Accident

Probability - Accidental Events - Mining Accident



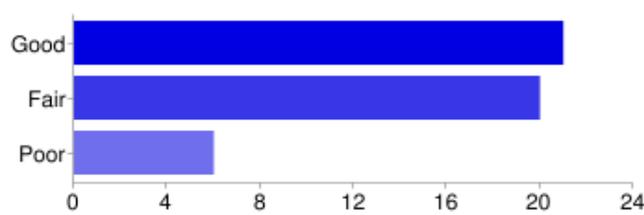
None	2	4%
Low	5	11%
Medium	20	43%
High	20	43%

Consequence - Accidental Events - Mining Accident



Low	7	15%
Moderate	10	21%
High	5	11%
Health / Safety	9	19%
Life Threatening	16	34%

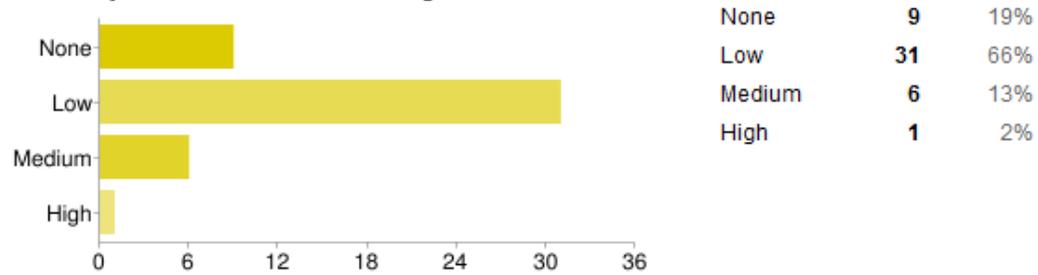
Preparedness - Accidental Events - Mining Accident



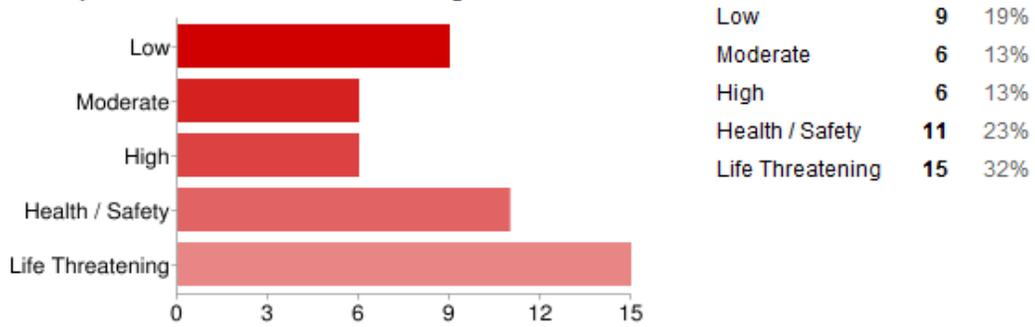
Good	21	45%
Fair	20	43%
Poor	6	13%

Radiological/Nuclear Accident

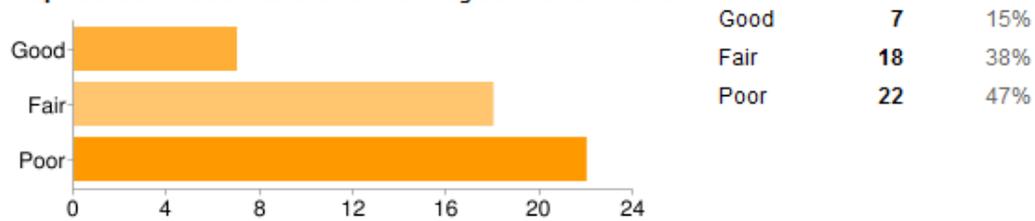
Probability - Accidental Events - Radiological / Nuclear Accident



Consequence - Accidental Events - Radiological / Nuclear Accident

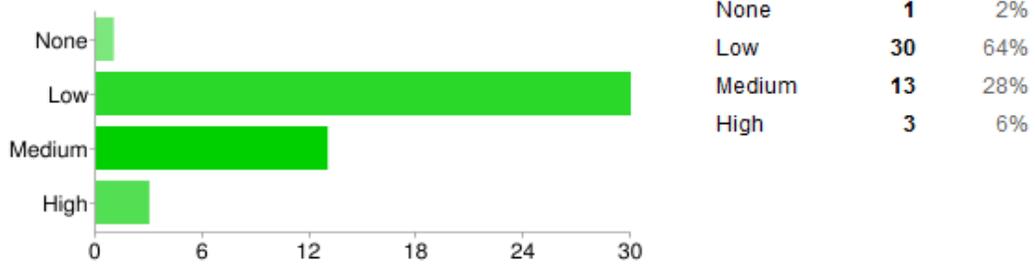


Preparedness - Accidental Events - Radiological / Nuclear Accident

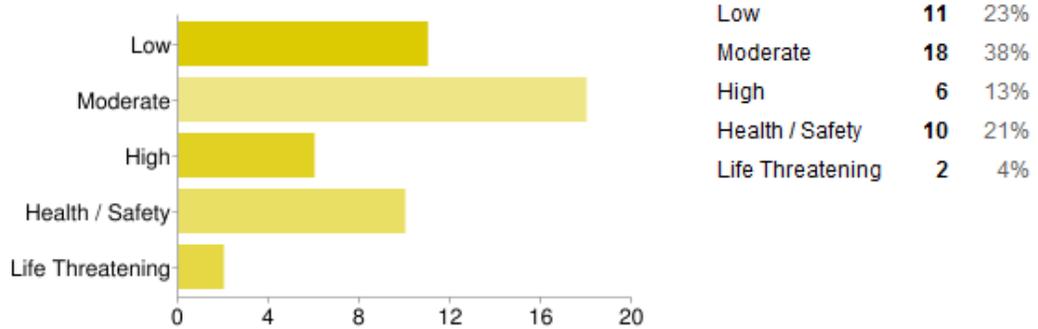


Transportation Accident – Water

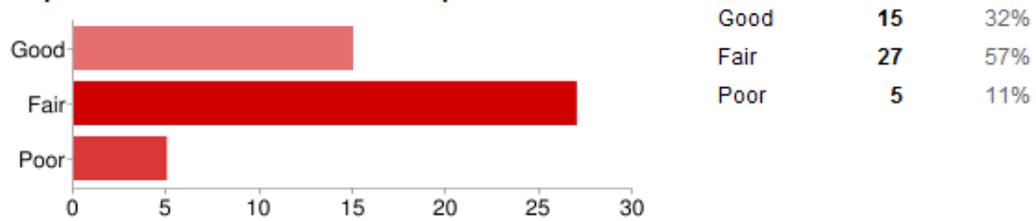
Probability - Accidental Events - Transportation Accident - Water



Consequence - Accidental Events - Transportation Accident - Water

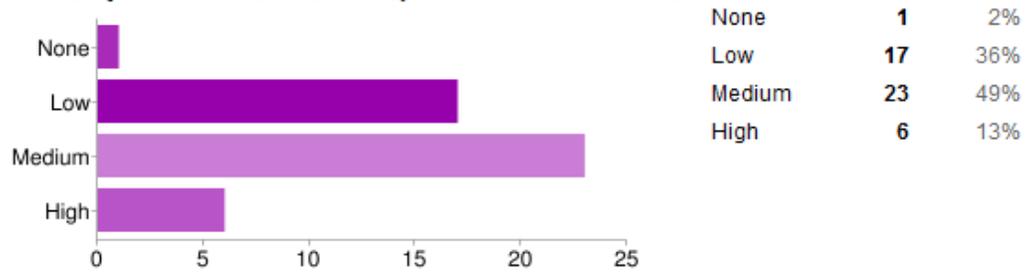


Preparedness - Accidental Events - Transportation Accident - Water

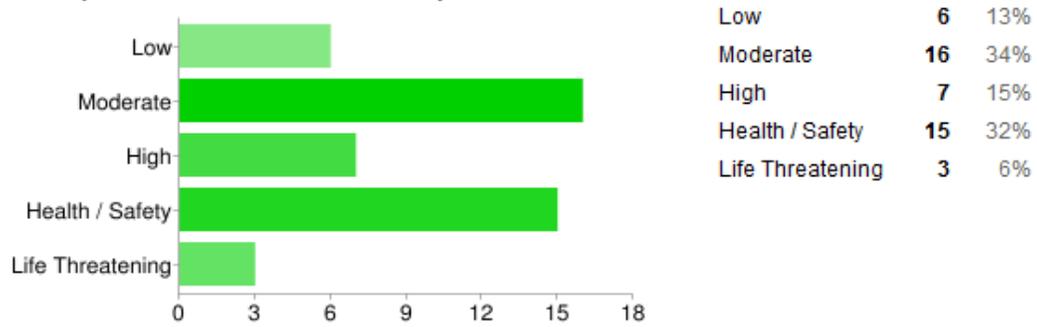


Transportation Accident – Railroad

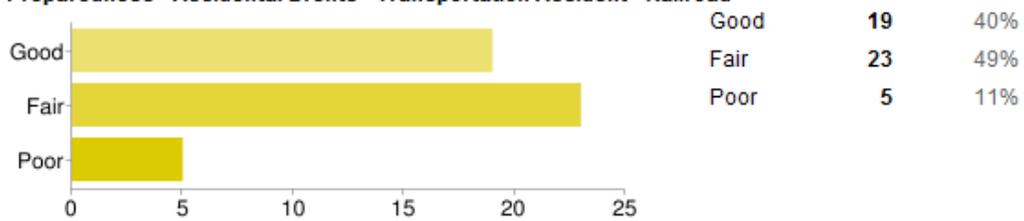
Probability - Accidental Events - Transportation Accident - Railroad



Consequence - Accidental Events - Transportation Accident - Railroad

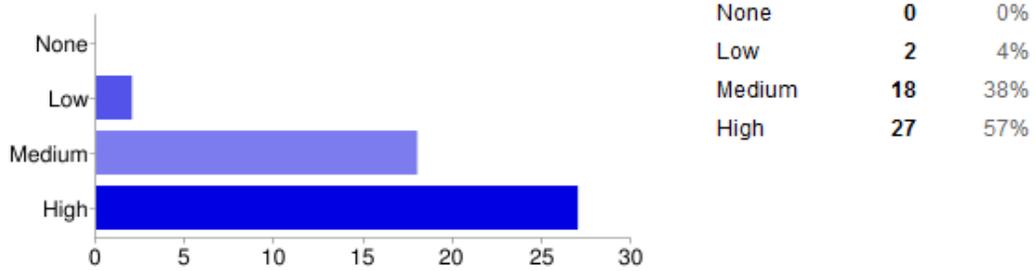


Preparedness - Accidental Events - Transportation Accident - Railroad

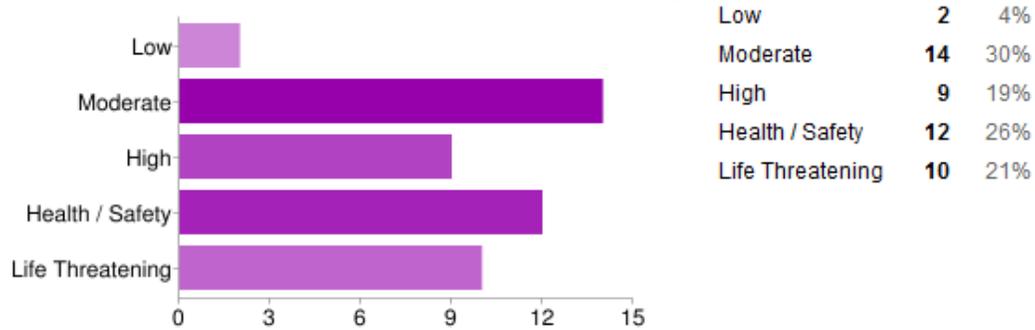


Transportation Accident – Highway

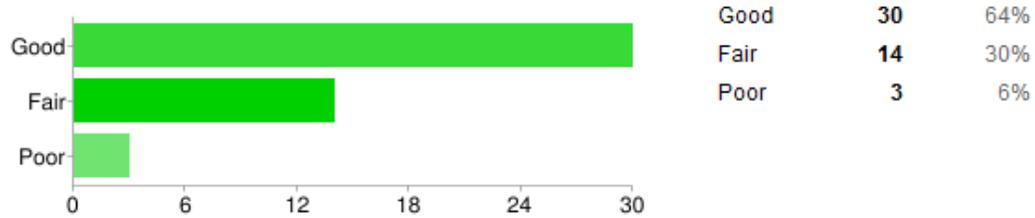
Probability - Accidental Events - Transportation Accident - Highway



Consequence - Accidental Events - Transportation Accident - Highway

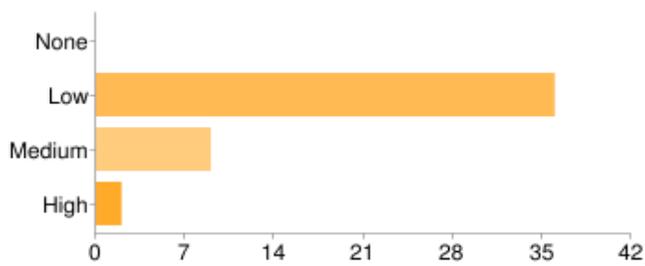


Preparedness - Accidental Events - Transportation Accident - Highway



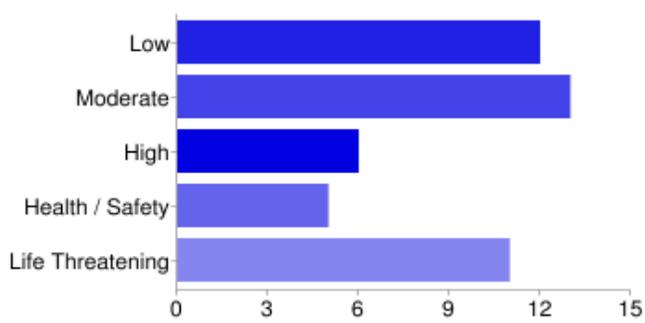
Transportation Accident – Air

Probability - Accidental Events - Transportation Accident - Air



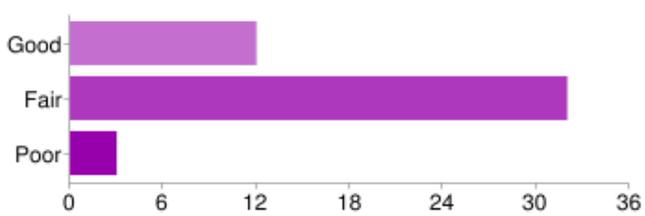
None	0	0%
Low	36	77%
Medium	9	19%
High	2	4%

Consequence - Accidental Events - Transportation Accident - Air



Low	12	26%
Moderate	13	28%
High	6	13%
Health / Safety	5	11%
Life Threatening	11	23%

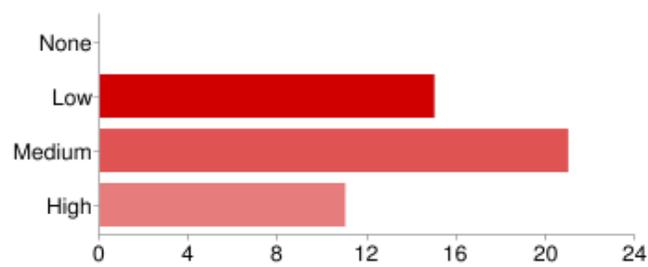
Preparedness - Accidental Events - Transportation Accident - Air



Good	12	26%
Fair	32	68%
Poor	3	6%

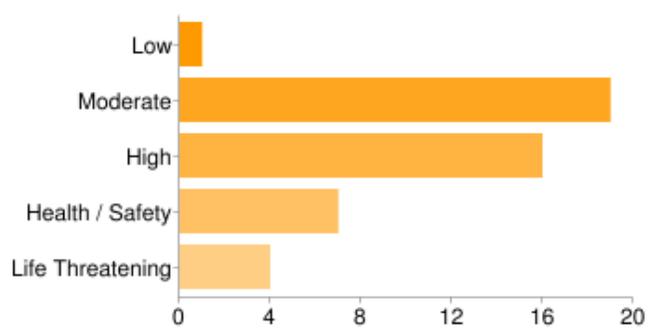
Communications Failure

Probability - Accidental Events - Communication Failure



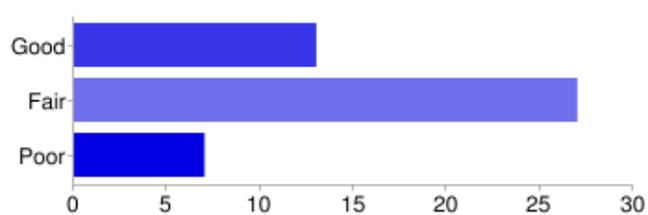
None	0	0%
Low	15	32%
Medium	21	45%
High	11	23%

Consequence - Accidental Events - Communication Failure



Low	1	2%
Moderate	19	40%
High	16	34%
Health / Safety	7	15%
Life Threatening	4	9%

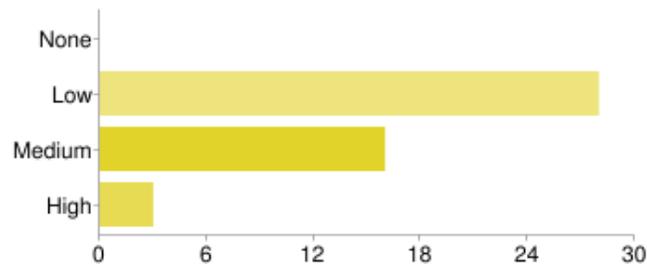
Preparedness - Accidental Events - Communication Failure



Good	13	28%
Fair	27	57%
Poor	7	15%

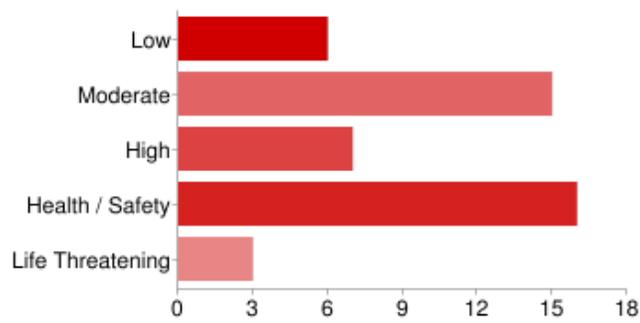
Water Supply Failure

Probability - Accidental Events - Water Supply Failure



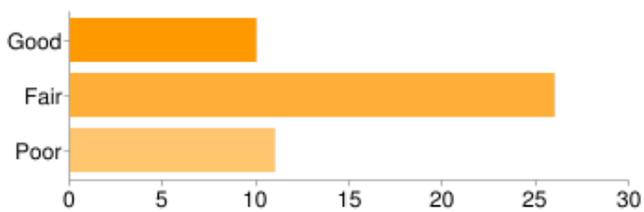
None	0	0%
Low	28	60%
Medium	16	34%
High	3	6%

Consequence - Accidental Events - Water Supply Failure



Low	6	13%
Moderate	15	32%
High	7	15%
Health / Safety	16	34%
Life Threatening	3	6%

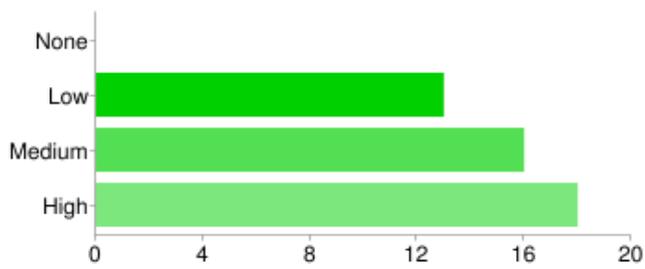
Preparedness - Accidental Events - Water Supply Failure



Good	10	21%
Fair	26	55%
Poor	11	23%

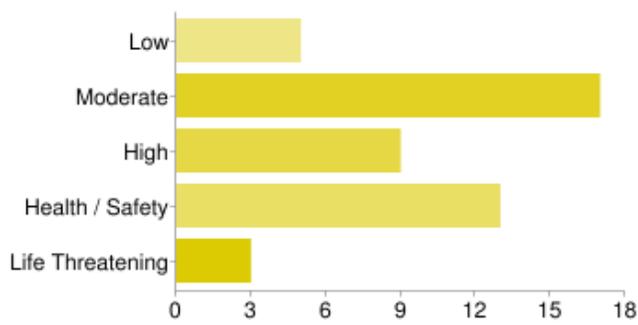
Electrical Outage

Probability - Accidental Events - Electrical Outage



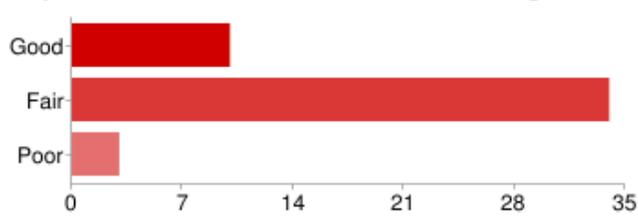
None	0	0%
Low	13	28%
Medium	16	34%
High	18	38%

Consequence - Accidental Events - Electrical Outage



Low	5	11%
Moderate	17	36%
High	9	19%
Health / Safety	13	28%
Life Threatening	3	6%

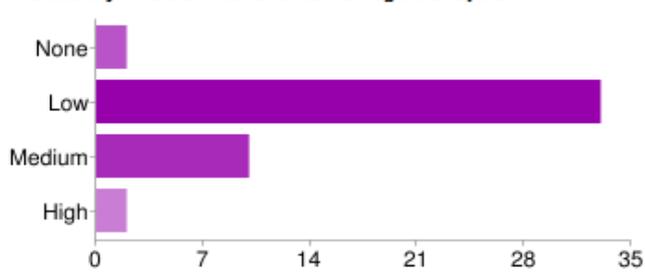
Preparedness - Accidental Events - Electrical Outage



Good	10	21%
Fair	34	72%
Poor	3	6%

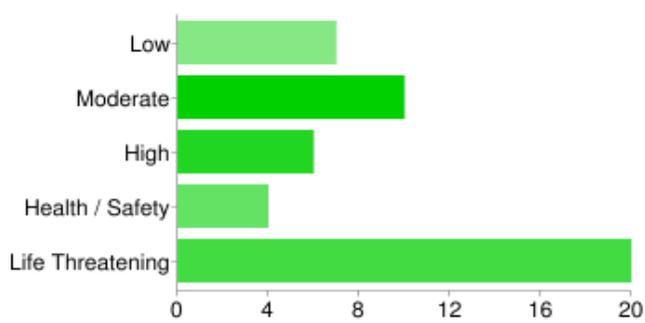
Bridge Collapse

Probability - Accidental Events - Bridge Collapse



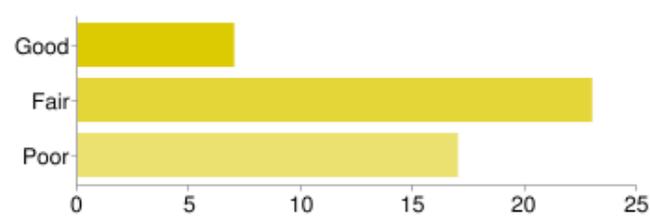
None	2	4%
Low	33	70%
Medium	10	21%
High	2	4%

Consequence - Accidental Events - Bridge Collapse



Low	7	15%
Moderate	10	21%
High	6	13%
Health / Safety	4	9%
Life Threatening	20	43%

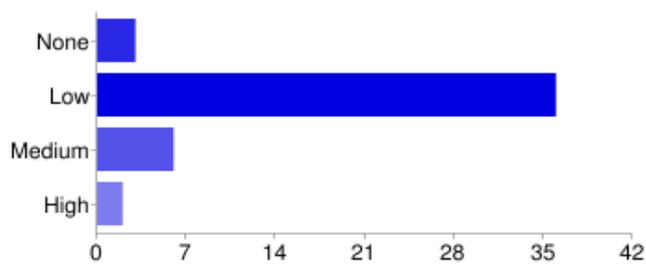
Preparedness - Accidental Events - Bridge Collapse



Good	7	15%
Fair	23	49%
Poor	17	36%

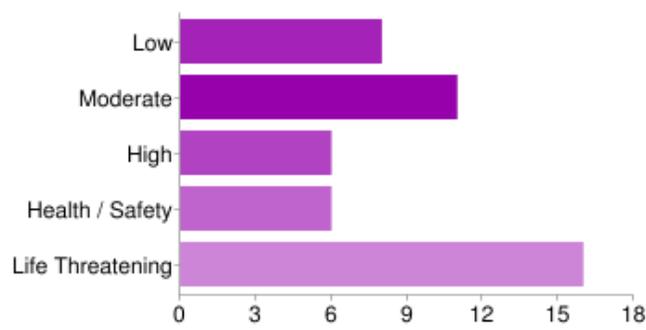
Building Collapse

Probability - Accidental Events - Building Collapse



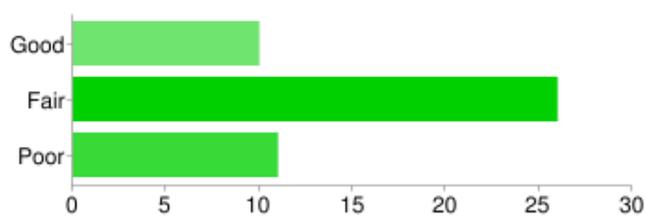
None	3	6%
Low	36	77%
Medium	6	13%
High	2	4%

Consequence - Accidental Events - Building Collapse



Low	8	17%
Moderate	11	23%
High	6	13%
Health / Safety	6	13%
Life Threatening	16	34%

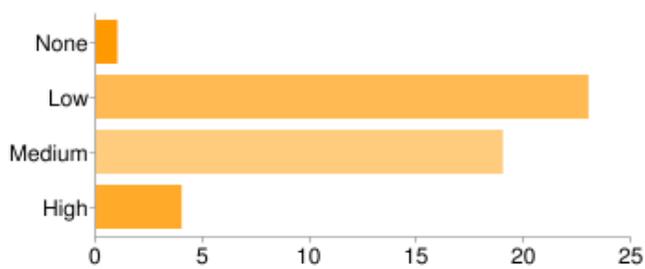
Preparedness - Accidental Events - Building Collapse



Good	10	21%
Fair	26	55%
Poor	11	23%

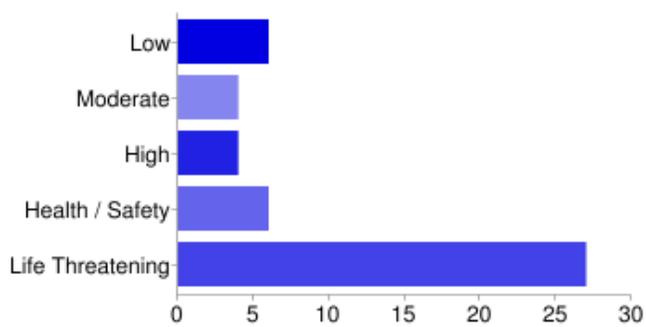
Dam Failure

Probability - Accidental Events - Dam Failure



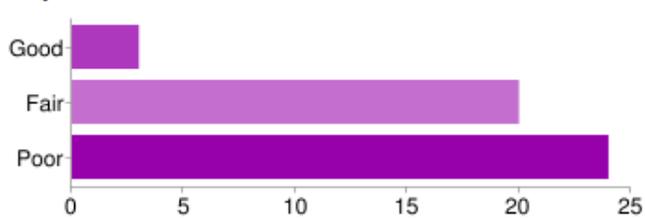
None	1	2%
Low	23	49%
Medium	19	40%
High	4	9%

Consequence - Accidental Events - Dam Failure



Low	6	13%
Moderate	4	9%
High	4	9%
Health / Safety	6	13%
Life Threatening	27	57%

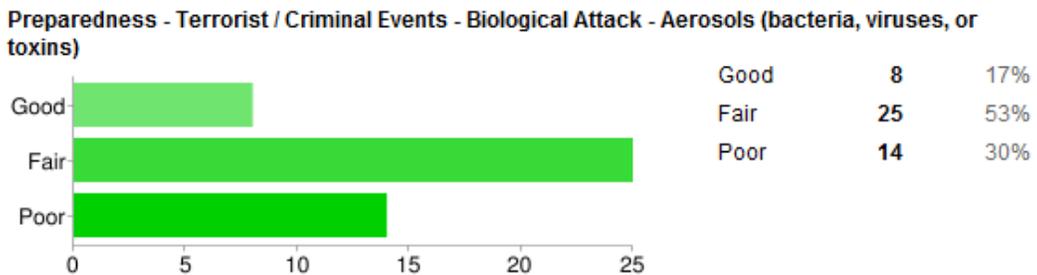
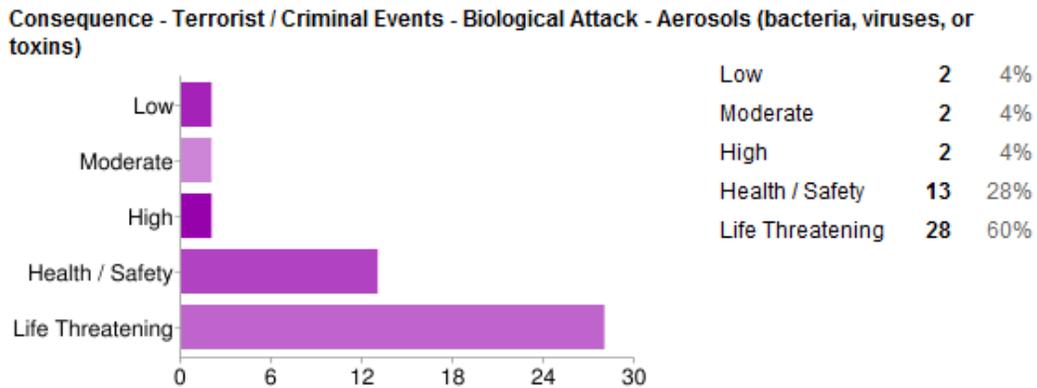
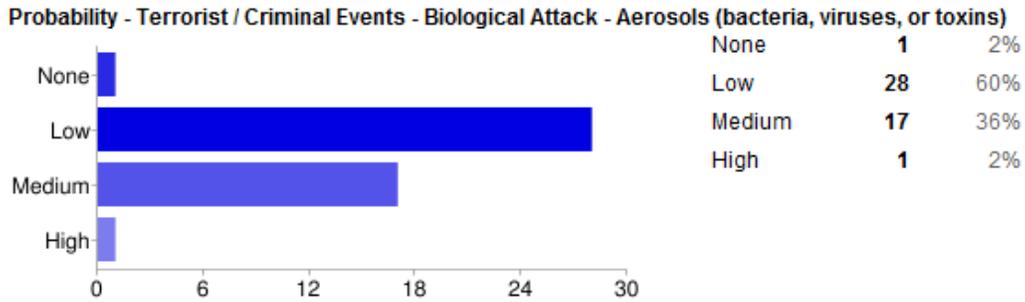
Preparedness - Accidental Events - Dam Failure



Good	3	6%
Fair	20	43%
Poor	24	51%

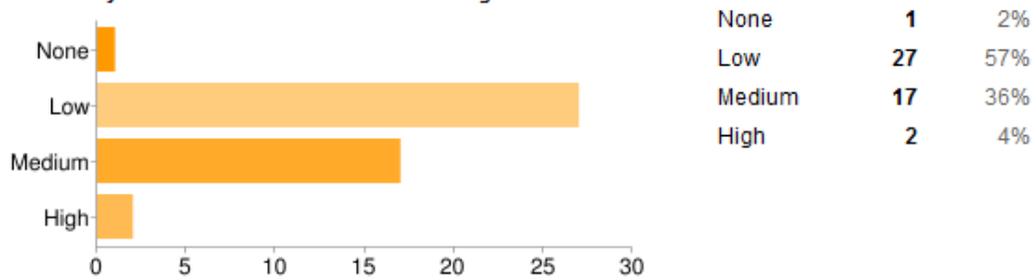
Terrorist/Criminal Attacks

Biological Attack – Aerosols (bacteria, viruses, or toxins)

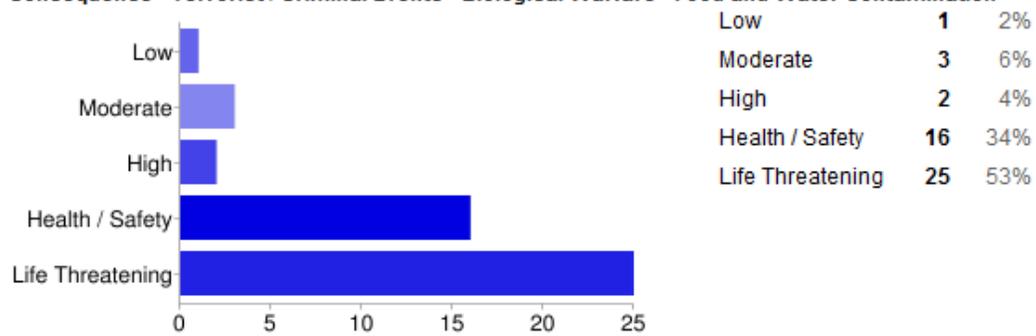


Biological Warfare – Food and Water Contamination

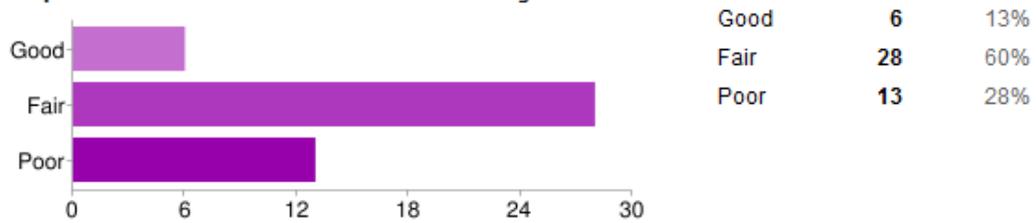
Probability - Terrorist / Criminal Events - Biological Warfare - Food and Water Contamination



Consequence - Terrorist / Criminal Events - Biological Warfare - Food and Water Contamination

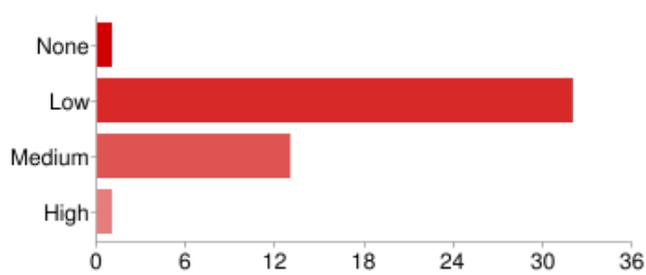


Preparedness - Terrorist / Criminal Events - Biological Warfare - Food and Water Contamination



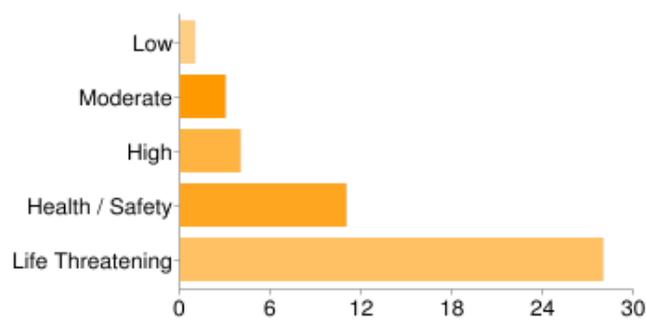
Chemical Warfare

Probability - Terrorist / Criminal Events - Chemical Warfare



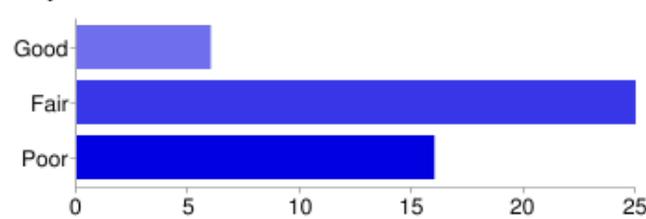
None	1	2%
Low	32	68%
Medium	13	28%
High	1	2%

Consequence - Terrorist / Criminal Events - Chemical Warfare



Low	1	2%
Moderate	3	6%
High	4	9%
Health / Safety	11	23%
Life Threatening	28	60%

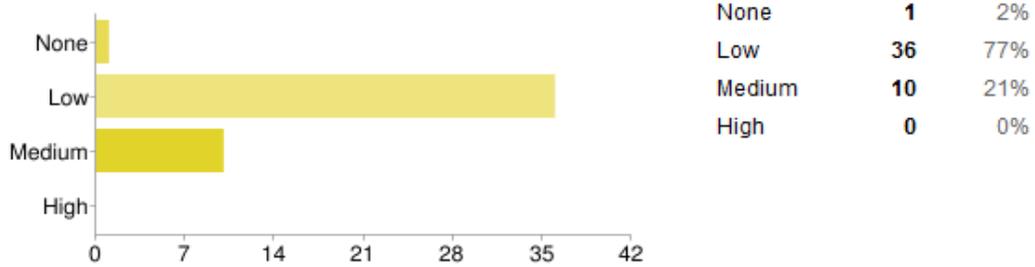
Preparedness - Terrorist / Criminal Events - Chemical Warfare



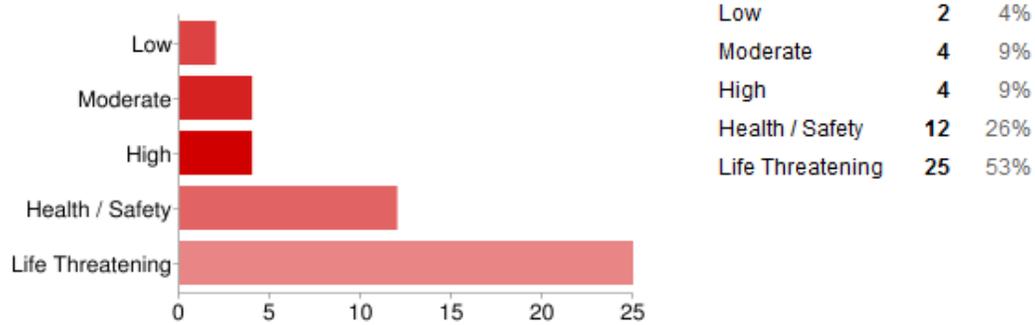
Good	6	13%
Fair	25	53%
Poor	16	34%

Radiological Attack (dirty bomb)

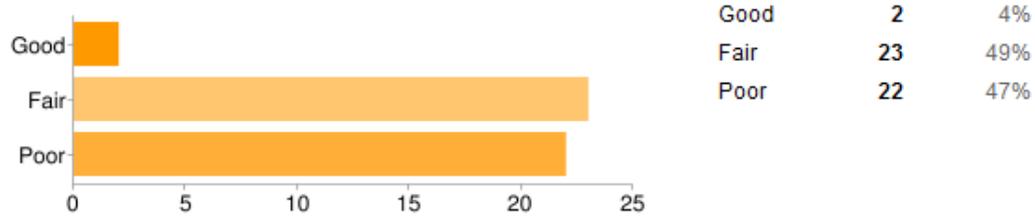
Probability - Terrorist / Criminal Events - Radiological Attack (dirty bomb)



Consequence - Terrorist / Criminal Events - Radiological Attack (dirty bomb)

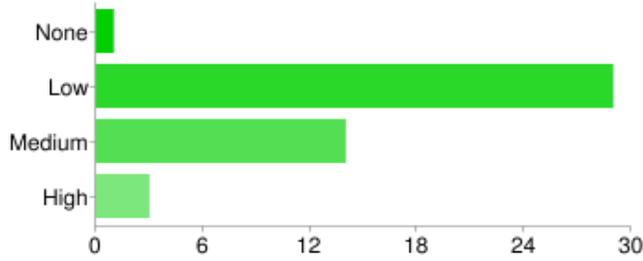


Preparedness - Terrorist / Criminal Events - Radiological Attack (dirty bomb)



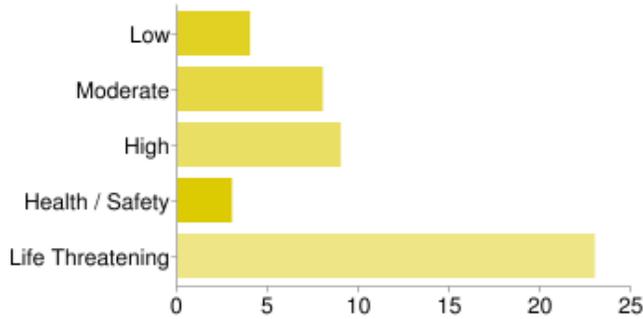
Incendiary Attack (IED)

Probability - Terrorist / Criminal Events - Incendiary Attack (IED)



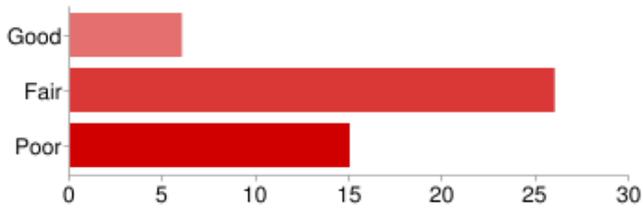
None	1	2%
Low	29	62%
Medium	14	30%
High	3	6%

Consequence - Terrorist / Criminal Events - Incendiary Attack (IED)



Low	4	9%
Moderate	8	17%
High	9	19%
Health / Safety	3	6%
Life Threatening	23	49%

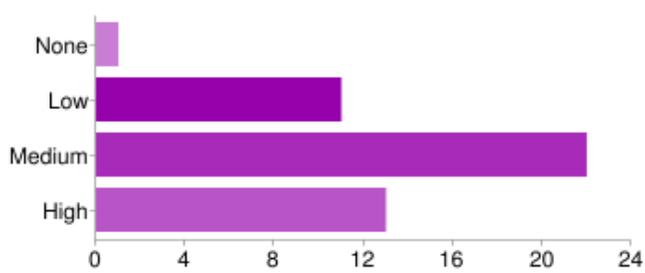
Preparedness - Terrorist / Criminal Events - Incendiary Attack (IED)



Good	6	13%
Fair	26	55%
Poor	15	32%

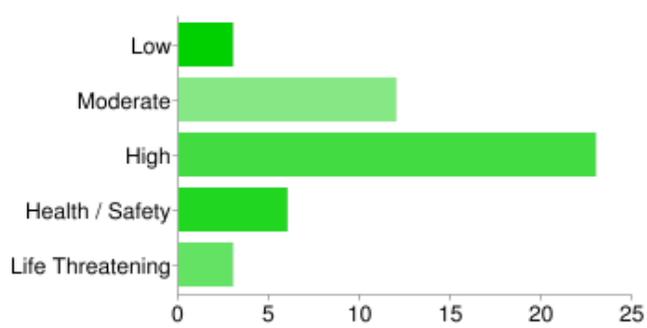
Cyber Attack

Probability - Terrorist / Criminal Events - Cyber Attack



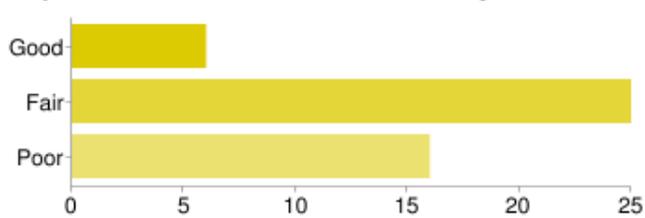
None	1	2%
Low	11	23%
Medium	22	47%
High	13	28%

Consequence - Terrorist / Criminal Events - Cyber Attack



Low	3	6%
Moderate	12	26%
High	23	49%
Health / Safety	6	13%
Life Threatening	3	6%

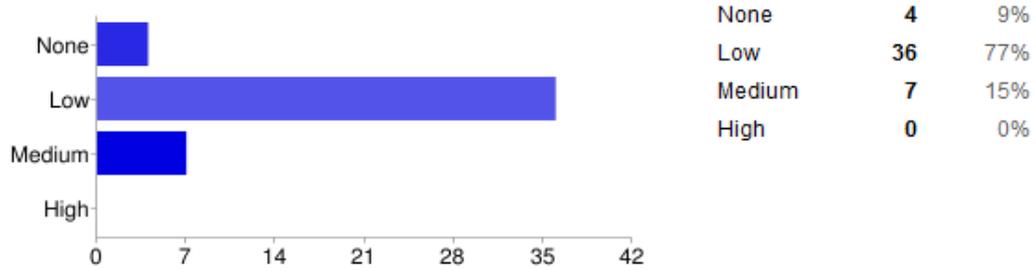
Preparedness - Terrorist / Criminal Events - Cyber Attack



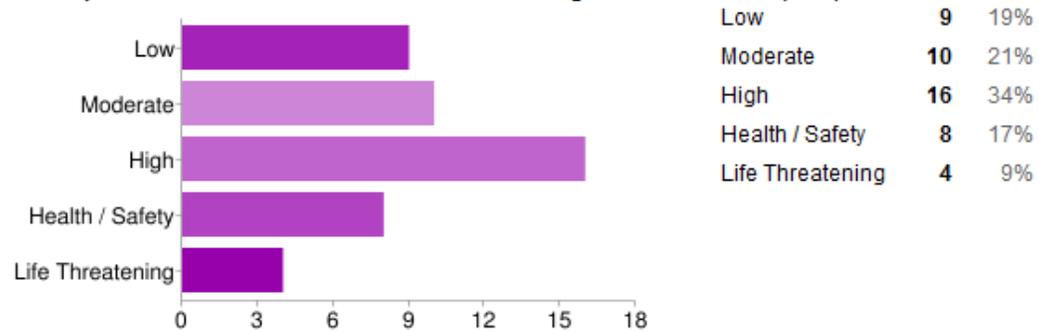
Good	6	13%
Fair	25	53%
Poor	16	34%

Electromagnetic Pulse Attack

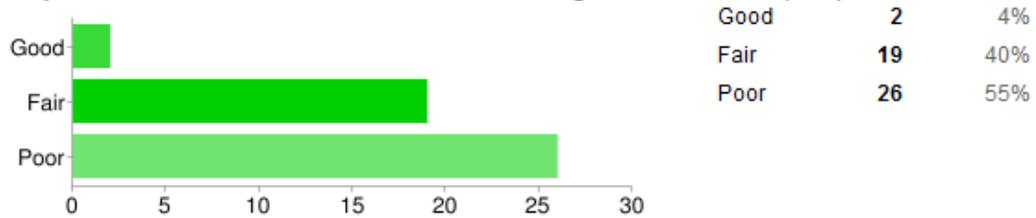
Probability - Terrorist / Criminal Events - Electromagnetic Pulse Attack (EMP)



Consequence - Terrorist / Criminal Events - Electromagnetic Pulse Attack (EMP)

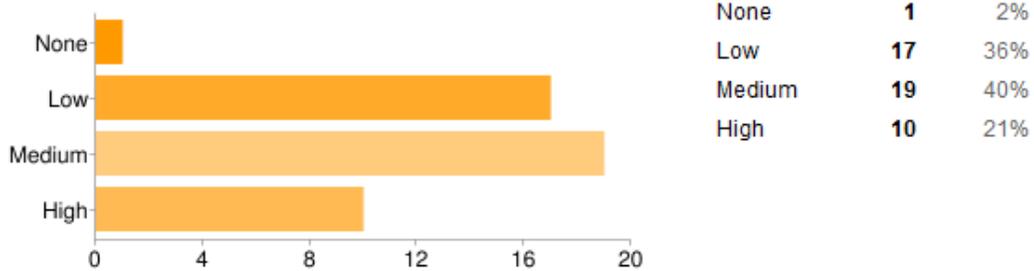


Preparedness - Terrorist / Criminal Events - Electromagnetic Pulse Attack (EMP)

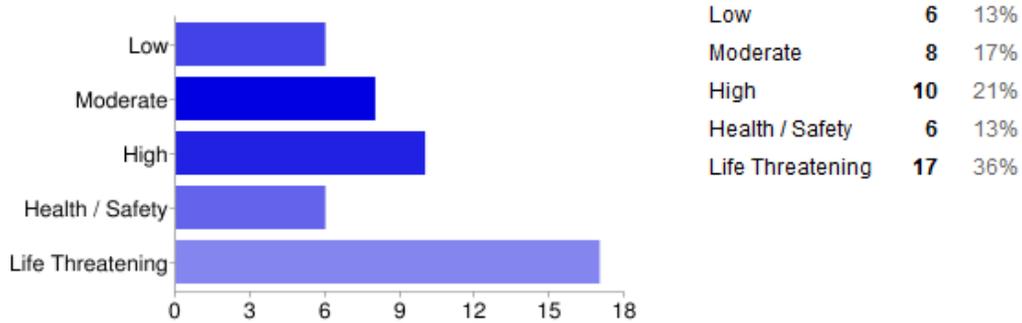


Hostage Taking

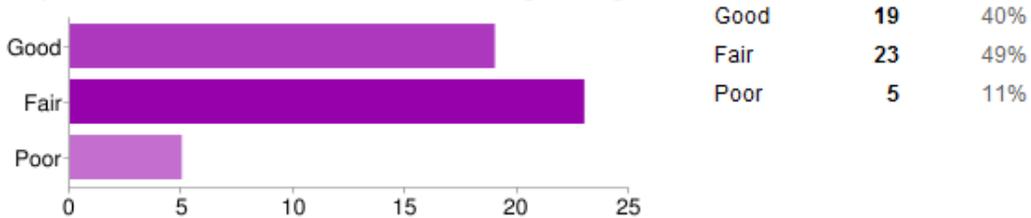
Probability - Terrorist / Criminal Events - Hostage Taking Event



Consequence - Terrorist / Criminal Events - Hostage Taking Event

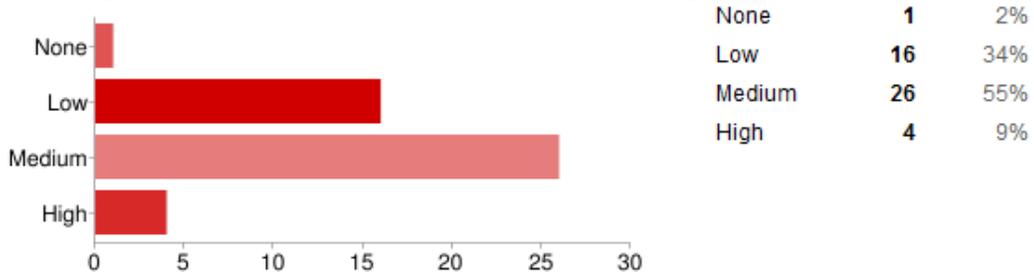


Preparedness - Terrorist / Criminal Events - Hostage Taking Event

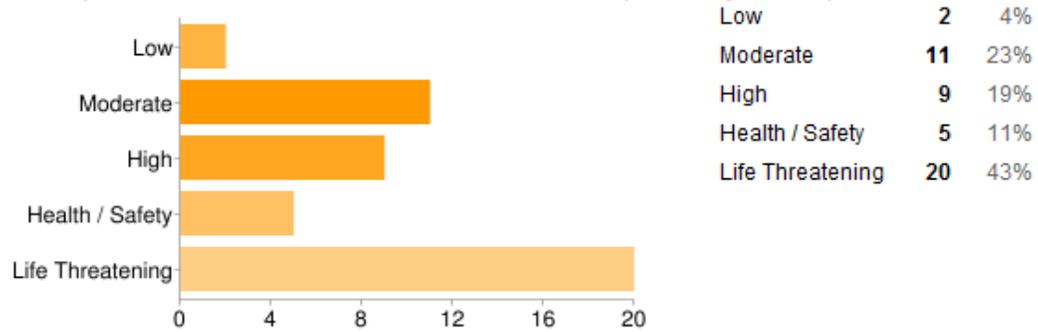


Active Shooter

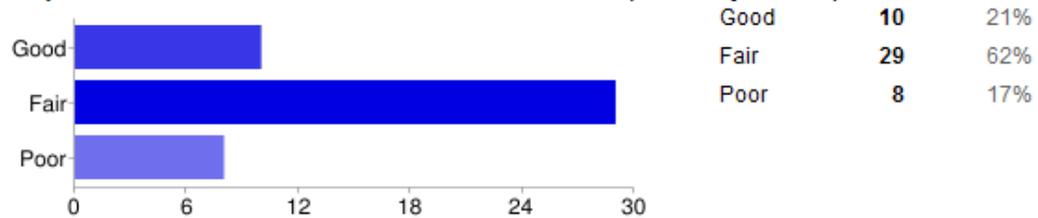
Probability - Terrorist / Criminal Events - Active Shooter (Mumbi style attack)



Consequence - Terrorist / Criminal Events - Active Shooter (Mumbi style attack)

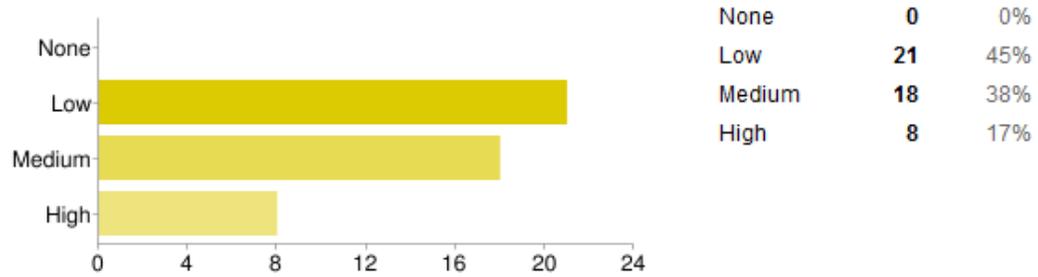


Preparedness - Terrorist / Criminal Events - Active Shooter (Mumbi style attack)

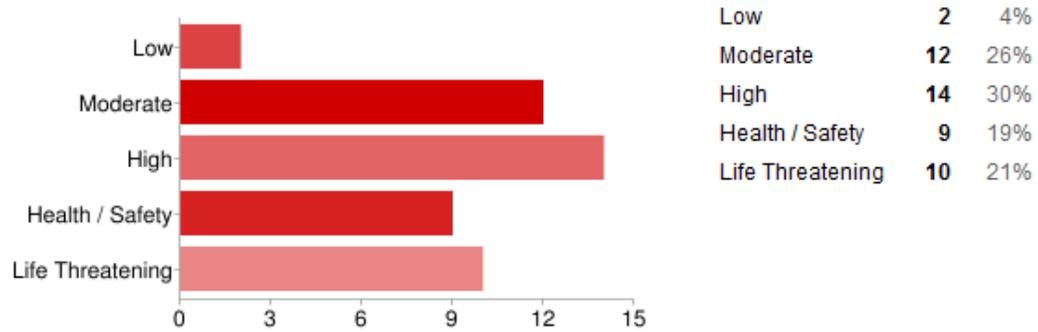


Multiple Events Occurring at Same Time in Different Locations

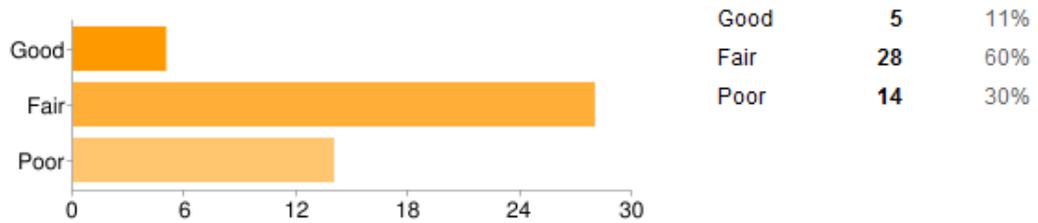
Probability - Terrorist / Criminal Events - Multiple Events Occurring at Same Time in Different Locations



Consequence - Terrorist / Criminal Events - Multiple Events Occurring at Same Time in Different Locations

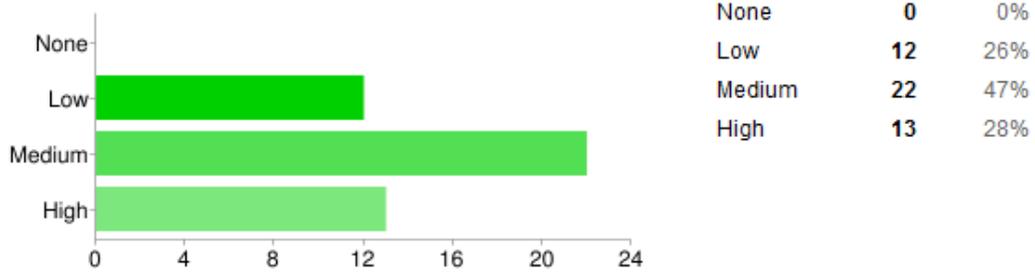


Preparedness - Terrorist / Criminal Events - Multiple Events Occurring at Same Time in Different Locations

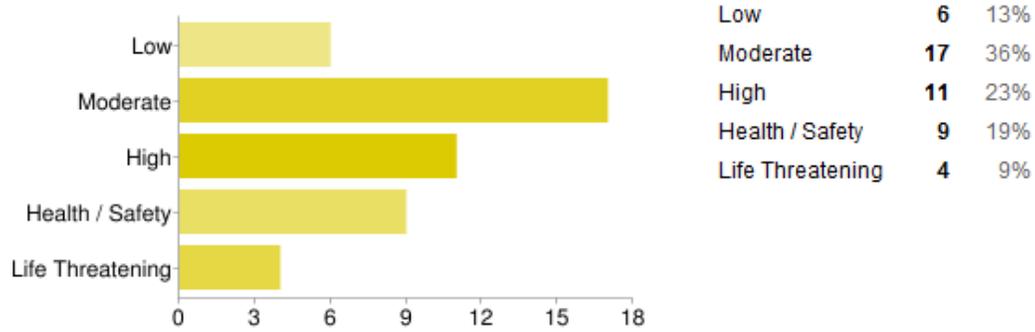


Suspicious Parcels

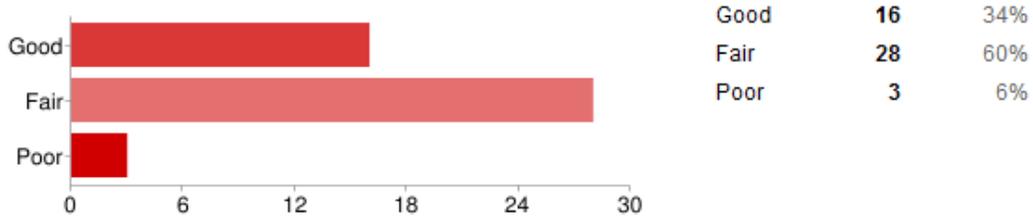
Probability - Terrorist / Criminal Events - Suspicious Parcel or Letter



Consequence - Terrorist / Criminal Events - Suspicious Parcel or Letter



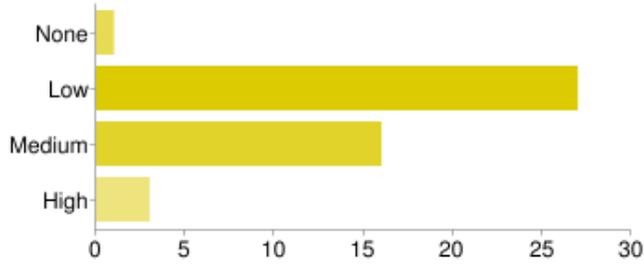
Preparedness - Terrorist / Criminal Events - Suspicious Parcel or Letter



Civil Political Events

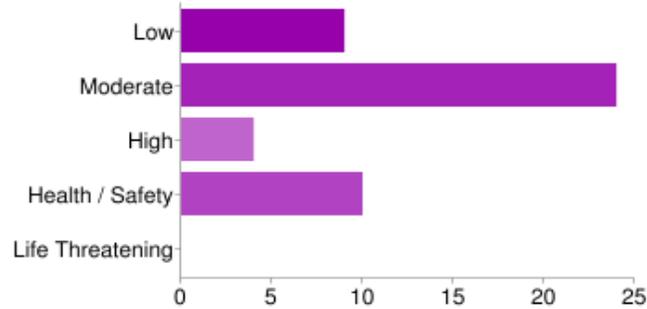
Civil Disturbance

Probability - Civil and Political Events - Civil Disturbance



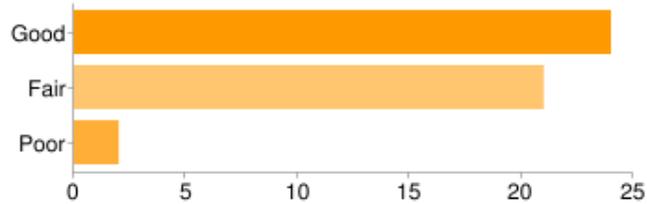
None	1	2%
Low	27	57%
Medium	16	34%
High	3	6%

Consequence - Civil and Political Events - Civil Disturbance



Low	9	19%
Moderate	24	51%
High	4	9%
Health / Safety	10	21%
Life Threatening	0	0%

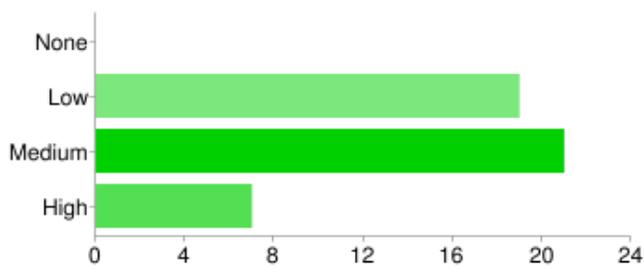
Preparedness - Civil and Political Events - Civil Disturbance



Good	24	51%
Fair	21	45%
Poor	2	4%

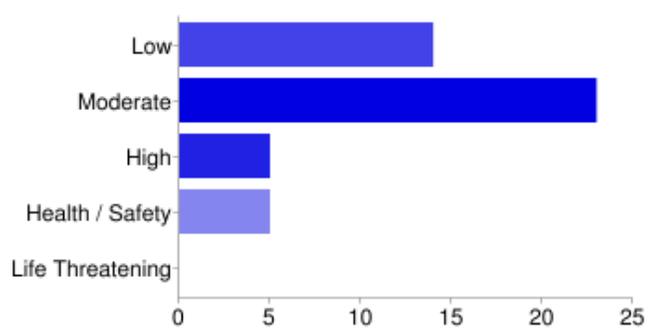
Protest

Probability - Civil and Political Events - Protest



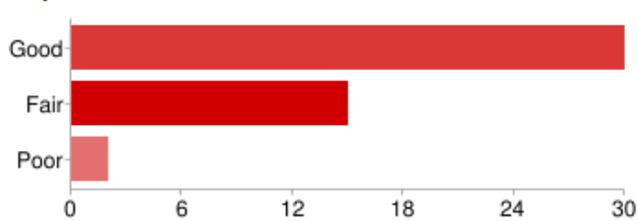
None	0	0%
Low	19	40%
Medium	21	45%
High	7	15%

Consequence - Civil and Political Events - Protest



Low	14	30%
Moderate	23	49%
High	5	11%
Health / Safety	5	11%
Life Threatening	0	0%

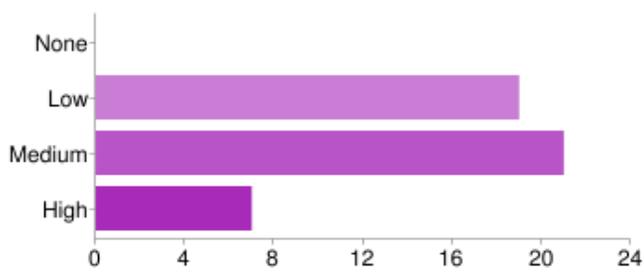
Preparedness - Civil and Political Events - Protest



Good	30	64%
Fair	15	32%
Poor	2	4%

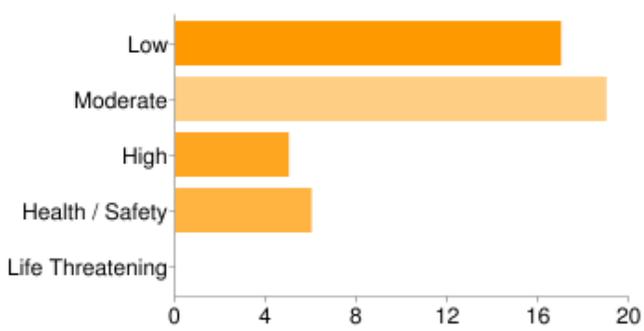
Public Demonstrations

Probability - Civil and Political Events - Public Demonstration



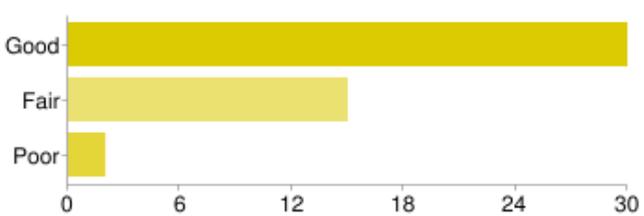
None	0	0%
Low	19	40%
Medium	21	45%
High	7	15%

Consequence - Civil and Political Events - Public Demonstration



Low	17	36%
Moderate	19	40%
High	5	11%
Health / Safety	6	13%
Life Threatening	0	0%

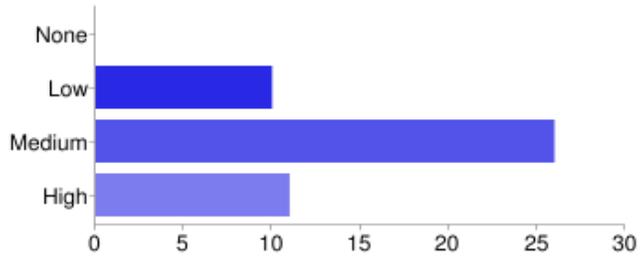
Preparedness - Civil and Political Events - Public Demonstration



Good	30	64%
Fair	15	32%
Poor	2	4%

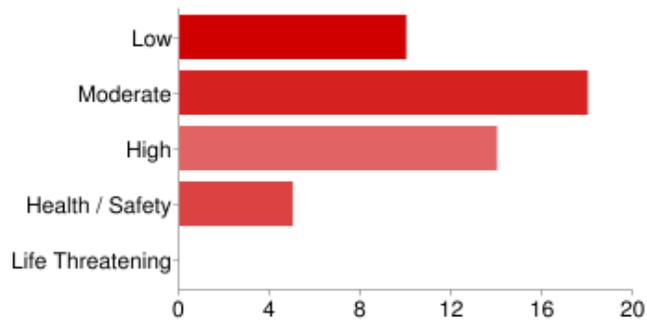
Strike

Probability - Civil and Political Events - Strike



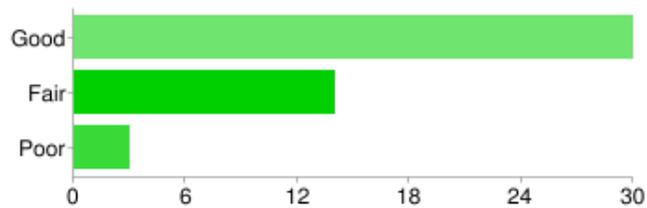
None	0	0%
Low	10	21%
Medium	26	55%
High	11	23%

Consequence - Civil and Political Events - Strike



Low	10	21%
Moderate	18	38%
High	14	30%
Health / Safety	5	11%
Life Threatening	0	0%

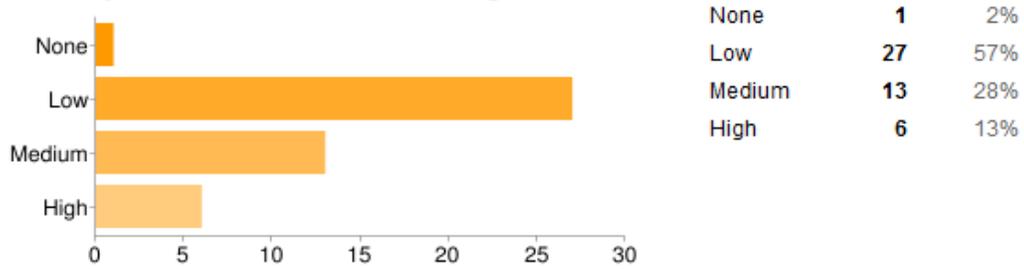
Preparedness - Civil and Political Events - Strike



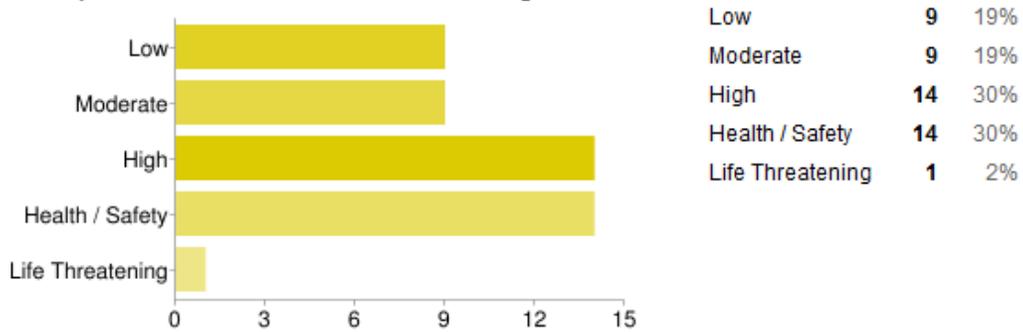
Good	30	64%
Fair	14	30%
Poor	3	6%

Mass Migration into Kanawha and Putnam Counties

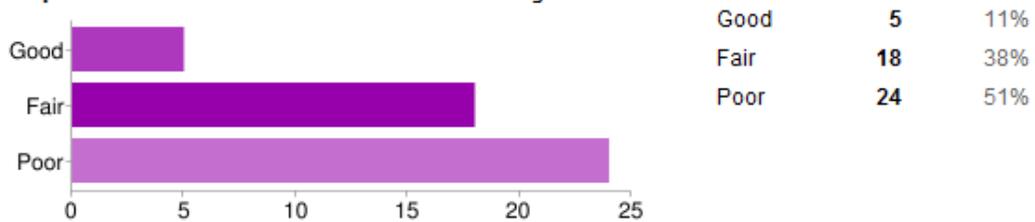
Probability - Civil and Political Events - Mass Migration into Kanawha and Putnam Counties



Consequence - Civil and Political Events - Mass Migration into Kanawha and Putnam Counties

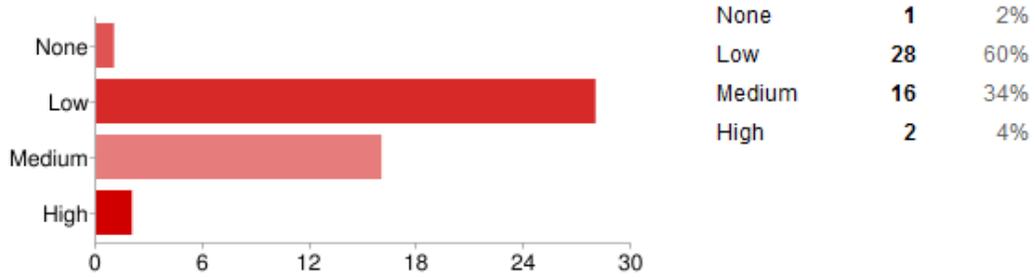


Preparedness - Civil and Political Events - Mass Migration into Kanawha and Putnam Counties

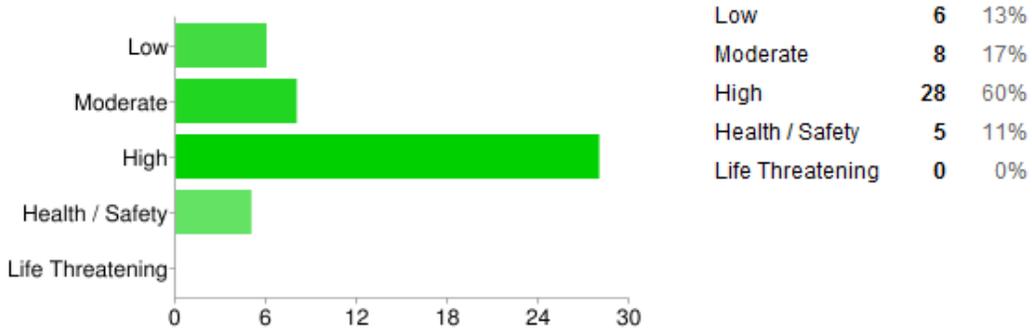


Financial System Collapse

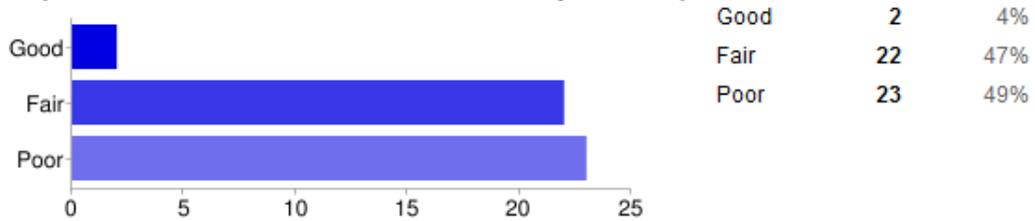
Probability - Civil and Political Events - Financial System Collapse



Consequence - Civil and Political Events - Financial System Collapse

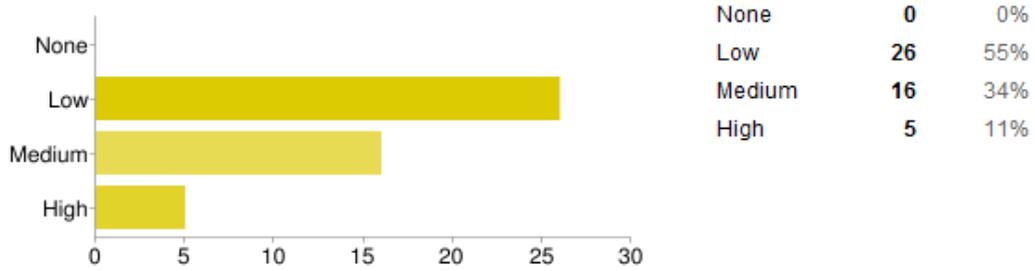


Preparedness - Civil and Political Events - Financial System Collapse

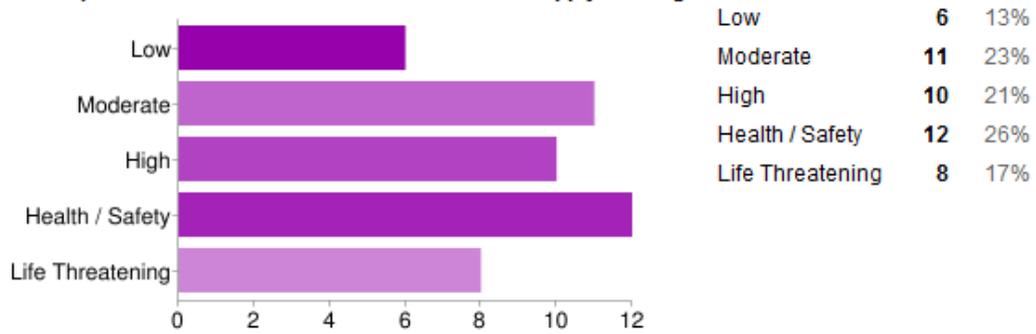


Medical Supply Shortage

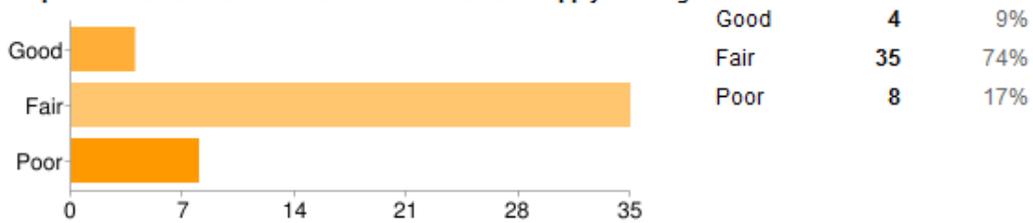
Probability - Civil and Political Events - Medical Supply Shortage



Consequence - Civil and Political Events - Medical Supply Shortage

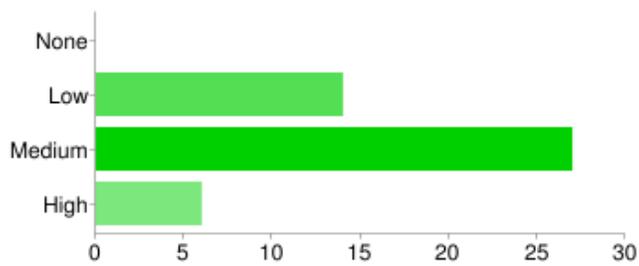


Preparedness - Civil and Political Events - Medical Supply Shortage



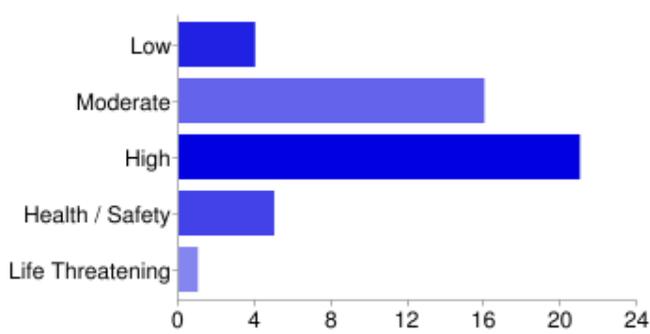
Fuel Shortage

Probability - Civil and Political Events - Fuel Shortage



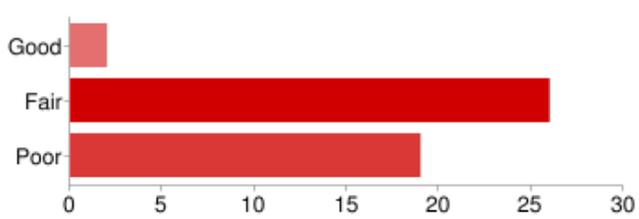
None	0	0%
Low	14	30%
Medium	27	57%
High	6	13%

Consequence - Civil and Political Events - Fuel Shortage



Low	4	9%
Moderate	16	34%
High	21	45%
Health / Safety	5	11%
Life Threatening	1	2%

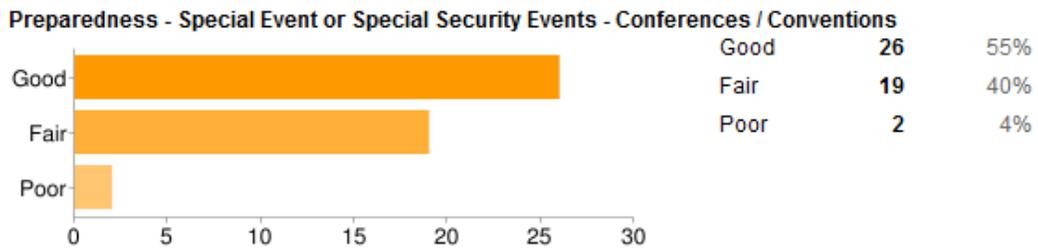
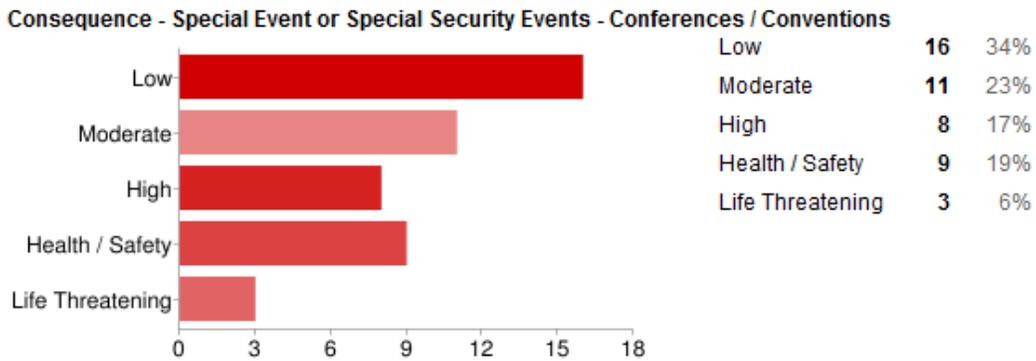
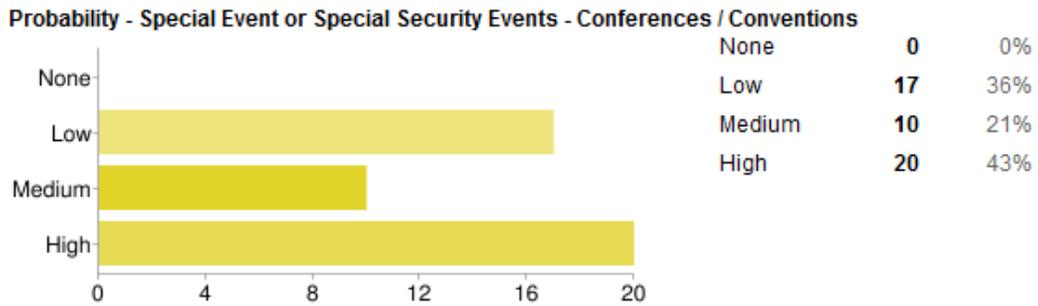
Preparedness - Civil and Political Events - Fuel Shortage



Good	2	4%
Fair	26	55%
Poor	19	40%

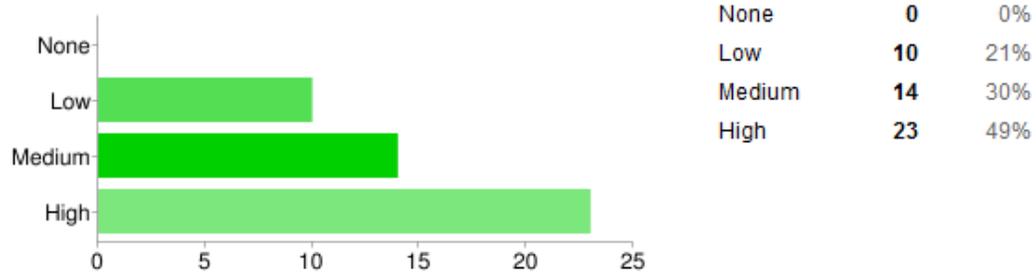
Special Events

Conference/Conventions

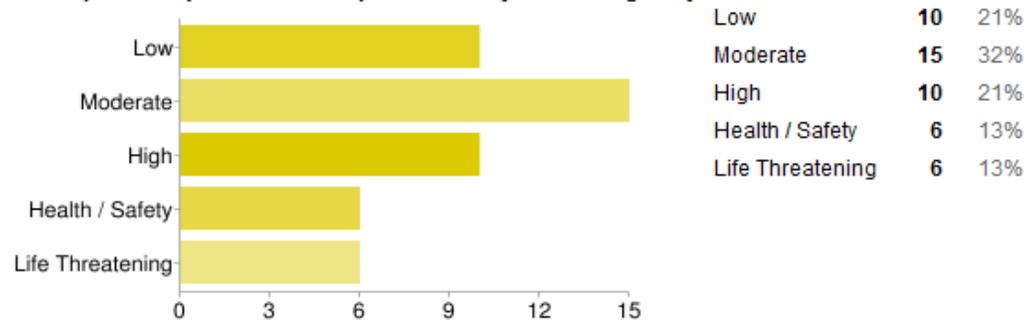


Dignitary Visits

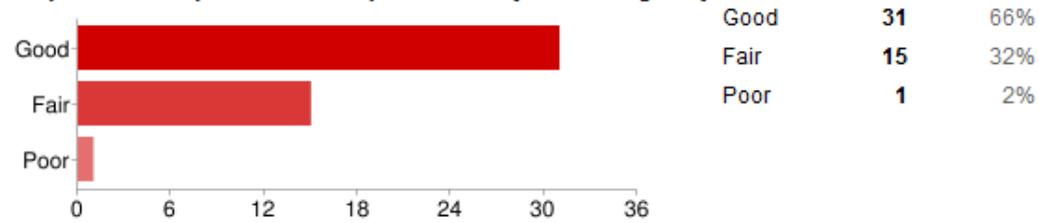
Probability - Special Event or Special Security Events - Dignitary Visits



Consequence - Special Event or Special Security Events - Dignitary Visits

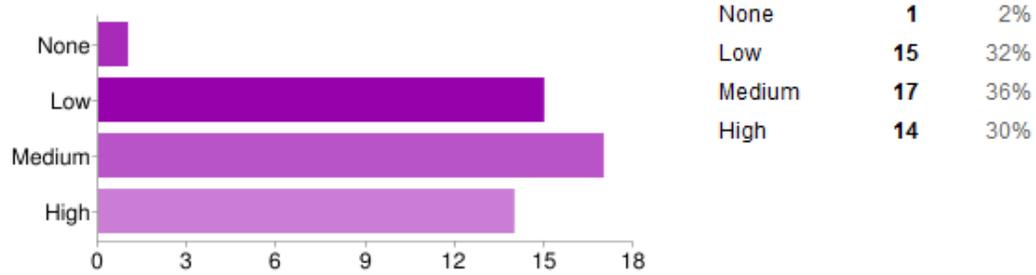


Preparedness - Special Event or Special Security Events - Dignitary Visits

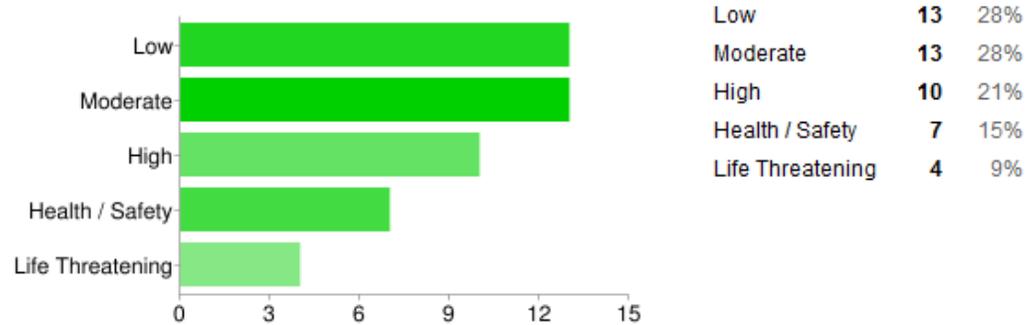


Inauguration

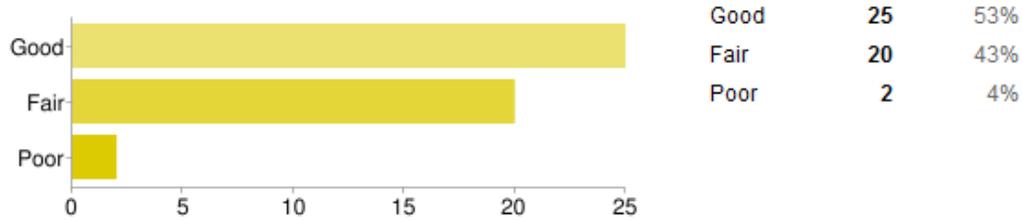
Probability - Special Event or Special Security Events - Inauguration



Consequence - Special Event or Special Security Events - Inauguration

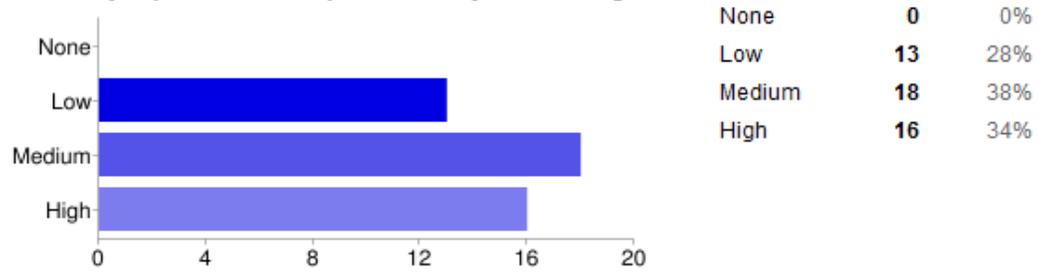


Preparedness - Special Event or Special Security Events - Inauguration

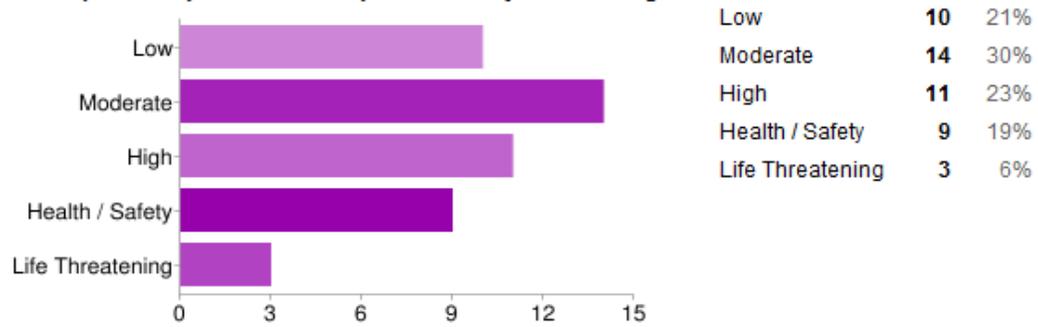


Large Festivals

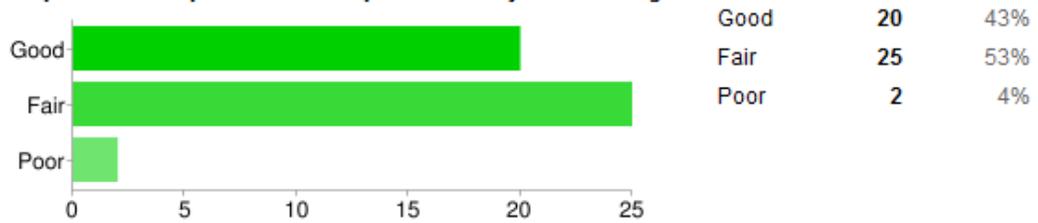
Probability - Special Event or Special Security Events - Large Festivals



Consequence - Special Event or Special Security Events - Large Festivals

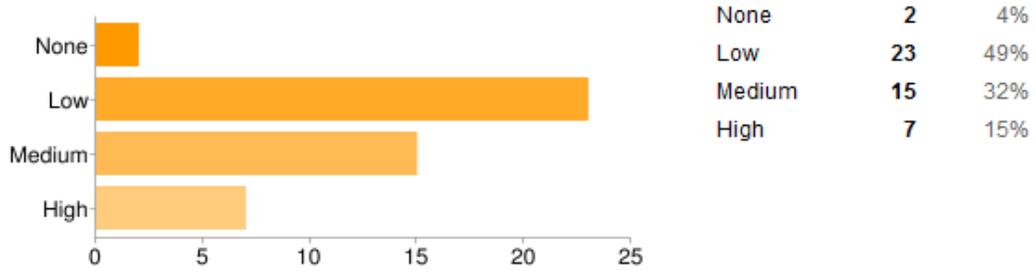


Preparedness - Special Event or Special Security Events - Large Festivals

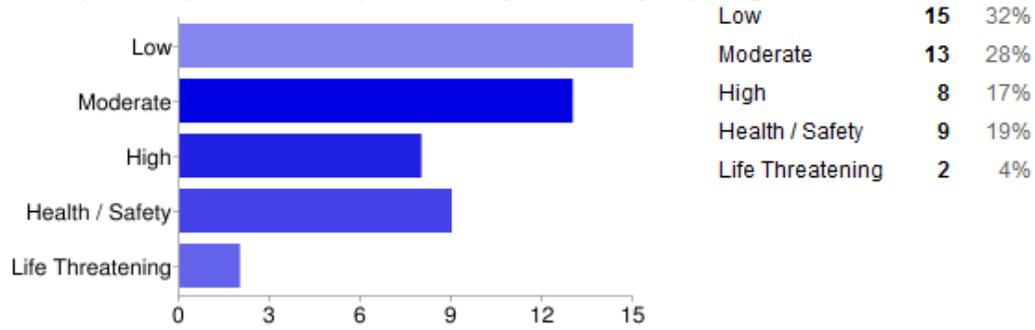


Major Sporting Events

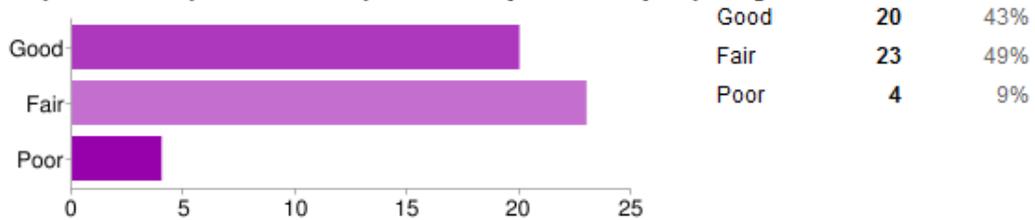
Probability - Special Event or Special Security Events - Major Sporting Events



Consequence - Special Event or Special Security Events - Major Sporting Events

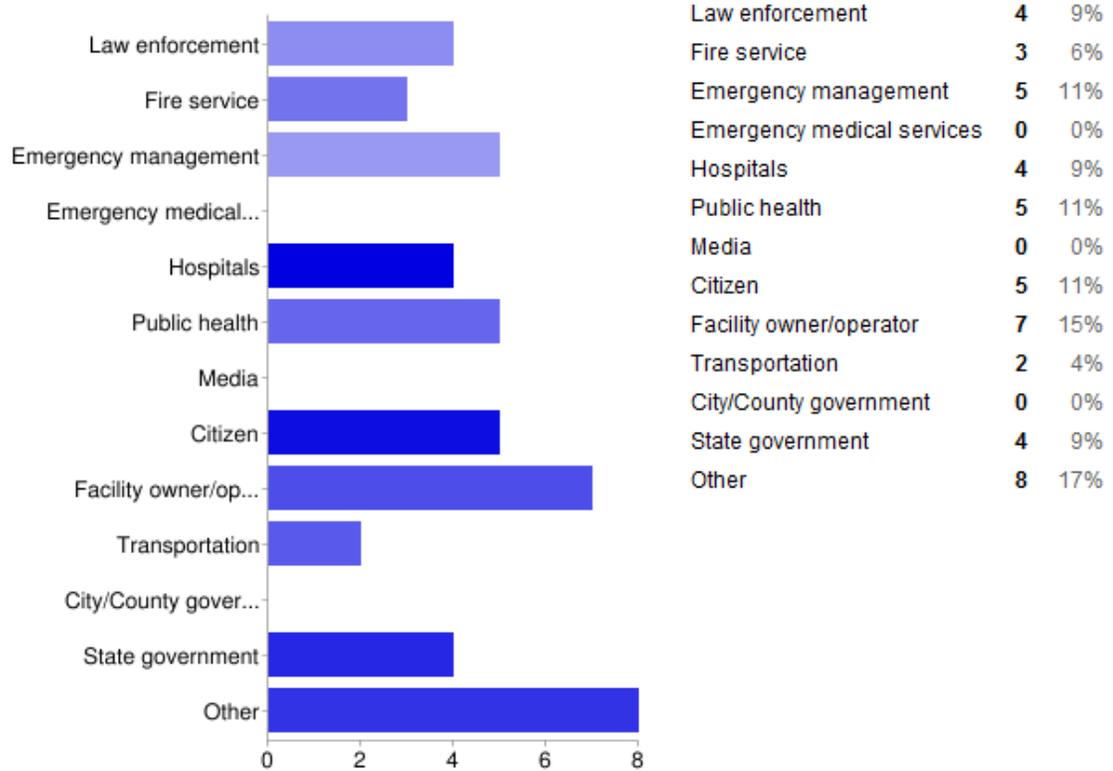


Preparedness - Special Event or Special Security Events - Major Sporting Events



Appendix 6 – Respondent Description

Please Indicate Your Group Affiliation



Please indicate how long you have been affiliated with the KPEPC.

