

Getting to lessons learned:

Lessons learned from a study of lessons learned

U.S. Fire Administration

Operational Lessons Learned in Disaster Response

June 2015



A study of after action reviews of recent disasters/exercises:

- Alabama-Georgia Tornadoes — USFA report
- Tropical Storm Irene AAR
- Fire Service Response to Hurricane Irene — USFA report
- Maintaining Fire Services in the Wake of Hurricane Sandy
- Wasatch Earthquake Planning/Resource Allocation
- New Madrid Earthquake Planning/Resource Allocation

Used lessons learned to updated two legacy reports:

- *TR-162: Fire Department Preparation for Extreme Weather*
- *TR-159: After Action Reports — Lessons Learned*

- Identifying problems and lessons learned is easy
- Changing behavior in individuals or organizations is not so easy

- There is a high price to be paid for learning that we may not be as rational as we thought
- Our mistakes are rarely random, and in fact they are often quite predictable
- They are simply part of what makes us human

It is often under extreme conditions that individual and group errors compound or escalate to a critical tipping point, resulting in an unintended consequence.

(potential exists for “group think” and/or “group polarization”)

Two of the biggest challenges facing group conversation are how to overcome *Group Think* and *Group Polarization* .

Groupthink is a psychological phenomenon that occurs within a group of people, in which the desire for harmony or conformity in the group results in an irrational or dysfunctional decision-making outcome.

Group members try to minimize conflict and reach a consensus decision without critical evaluation of alternative viewpoints, by actively suppressing dissenting viewpoints, and by isolating themselves from outside influences.

Credit: [Wikipedia: Group Think](#)

Group polarization refers to the tendency for groups to make decisions that are more extreme than the initial inclination of its members.

These more extreme decisions are towards greater risk if individuals' initial tendencies are to be risky and towards greater caution if individuals' initial tendencies are to be cautious.

Credit: [Wikipedia: Polarization](#)

Research into firefighter fatalities and less-than-effective responses to major incidents show time and again that the causes come from a list of contributing factors that are well-known in the emergency response field.

Despite the good intention of lessons learned, we make the same mistakes over and over.

A lesson cannot really be said to have been learned if it is repeatedly repeated.

CONDUCTING AFTER ACTION REVIEWS

Do	Don't
Schedule after action reviews shortly after the completion of an activity.	Conduct after action reviews without planning.
Make reviews routine.	Conduct reviews infrequently or irregularly.
Collect objective data whenever possible.	Allow debates to bog down when establishing the facts.
Use trained facilitators.	Allow dominating leaders to run after action reviews.
Establish clear ground rules: encourage candor and openness, focus on things that can be fixed, keep all discussions confidential.	Base performance evaluations or promotions on mistakes admitted in after action reviews.
Proceed systematically: What did we set out to do? What actually happened? Why did it happen? What are we going to do next time?	Permit unstructured, meandering, disorganized discussions.
Involve all participants in discussions.	Allow senior managers or facilitators to dominate discussions.
Probe for underlying cause-and-effect relationships.	Criticize or fault individual behavior or performance.
Identify activities to be sustained as well as errors to be avoided.	Conclude without a list of learnings to be applied in the future.

The Preparedness Cycle

NIMS defines preparedness as a continuous cycle of planning, organizing, training, equipping, exercising, evaluating and taking corrective action in an effort to ensure effective coordination during incident response. This preparedness cycle is one element of a broader National Preparedness System to prevent, respond to, recover from, and mitigate the effects of natural disasters, acts of terrorism, and other man-made disasters.

Components of the preparedness cycle:

- Plan.
- Organize and equip.
- Train.
- Exercise.
- Evaluate and improve.



The National Response Framework (NRF) presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies – from the smallest incident to the largest catastrophe. The NRF establishes a comprehensive, national, all-hazards approach to domestic incident response.

“In all-hazard events responders should recognize the inevitable need to adapt, meaning that sometimes the critical need is not the assigned mission or traditional mission to which they are accustomed.”

After action reports compiled following major regional disasters revealed that regardless of equipment, training, resources or communications, rural fire departments in the disaster areas faced four primary universal tasks or operational domains while suburban and urban fire agencies in the disaster areas focused on the first three.

Four Operational Domains or Universal Tasks:

1. Opening roadway access to structures
2. Search, rescue, treatment and transport of occupants
3. Self-protection and survival
4. Providing food, water, housing and sanitary needs for their communities



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	A	B	C	D	E	F	G	H	I	J
1	CRITICAL ACTIVITIES & TASKS IN ALL-HAZARD RESPONSE	PLANNING	EMERGING THREAT	RESPONSE	POST-EVENT	RECOVERY				
2	Prepare for specific event	X	X							
3	Collect information and data on event	X	X	X	X	X				
4	Estimate / determine resource needs	X	X	X	X	X				
5	Draft emergency operations plan	X	X							
6	Test the plan	X	X	X						
7	Revise plans as necessary	X	X							
8	Train on the plan	X	X							
9	Used and applied GIS where available	X	X	X	X	X				
10	Scale of potential incident dictates needs for unified incident management		X							
11	Notify principals of the governments and agencies		X							
12	Open EOC		X							
13	Opening and staffing Emergency Operations Centers		X							
14	Establish ICS		X							
15	Develop IAP and operational plans from strategic goals		X							
16	Provide for the safety of members and the public	X	X	X						
17	Establish communications		X							
18	Conduct numerous pre-landfall media interviews		X							
19	Providing Public Information		X	X	X	X				
20	Assess status of resources		X	X	X					
21	Resource inventories within departments and with neighboring communities	X	X							
22	Placing extra equipment and medical supplies on vehicles		X							
23	Checking generators for operational readiness and fuel		X							
24	Checking boats and other specialized water rescue equipment		X							
25	Placing extra equipment and PPEs on vehicles		X							
26	Assisting with shelter preparations		X	X						
27	Secure water supplies in advance of the storm		X							
28	Monitor conditions		X	X	X					
29	Cleaning storm drains from around stations		X	X						
30	Sand bagging		X							

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A83 : Folks don't know how to use or read the USAR marking system. Both groups strongly favored USFA bringing back a short Structural Collapse Awareness Course that included this subject (in

	A	B	C	D	E	F	G	H	I
1	FINDINGS FROM AFTER-ACTION REPORTS	T/S IRENE 2011	S.E. TORNADOS 2011	S/S SANDY 2012	T-T-Ex Wasatch Fault 2010	T-T-Ex New Madrid Fault 2011			
2	Need for distinct definition of a "save" versus a "recovery" for tracking purposes.	x							
3	FDNY reported that NWCG Task Books were a valuable tool.	x							
4	Need for a universal means to track and documentation the activities of fire service personnel and units during response and recovery operations. No viable method identified to date that would meet this need. Any possibility of USFA support or assistance to identify software or mobile app for the job?	x							
5	Recovery to normal operations was slow. One week to 10-days from the end of the storm agencies were still actively involved in response and recovery activities, including returning their own facilities to operational order. Few had drafted reports at this point making assessments difficult.	x							
6	Fire agencies differed as to how they individually collected (response) information for dissemination and reporting. Such information is needed for assessments of the response.	x							
7	More study is needed of the cumulative impact of disaster response on responders (volunteer and career) and their family members including, but not limited to, lengthy deployments, temporary relocations, recurring mutual aid assignments, economic disruptions, and damage or loss of personal property (homes, cars, etc).	x							
8	WebEOC produced good results for an overview of resources, but not all states use the mechanism. Only a few fire departments use the application.	x							
9	The USFA Learning Resource Center was invaluable in running media searches.	x							
10	Some of the contact information in the USFA Fire Department Census was outdated.	x							
11	Fire agencies were incredibly busy during the preparedness phase, but this effort was not thoroughly documented.	x							
12	Need for strategic discussions between USFA and stakeholders regarding improving the means of collecting and gathering fire service response information.	x							
13	Emergency operations preplanning is largely non-existent or not maintained. Responders admitted not knowing the details of their community EOP. Exceptions were in communities or counties with staffed EMA offices.		x						
14	More emergency/disaster operations training and disaster exercises needed, including IEMC courses and job aids		x						

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	A	B	C	D	E	F	G	H	I	J
1	RESOURCE IDENTIFICATION & ALIGNMENT IN DISASTER PLANNING, RESPONSE, & RECOVERY	POLICY & REGULATORY ISSUES	PROCESS ISSUES	GAPS IN AVAILABILITY	METHODS TO IDENTIFY & ALIGN CAPABILITIES TO IMPROVE RESOURCE UTILIZATION					
2	States requested specific teams from a agencies that did not not have teams available			x	Training in ICS, participation in emergency planning and disaster exercises are the means to developing an understanding of resource support					
3	States requested teams using terms that differed from those used by the providing agency		x	x	Disconnects in terminology emphasize the need to use universal resource-type definitions and language to avoid wasteful use of resources					
4	ESF-Plus groups requested states to place requests in terms of mission or desired outcome rather than specific resources needed		x	x	Mission-based requests give providing agencies latitude to and control over which resources to allocate to a state resulting in greater efficiency and utilization					
5	Multiple response agencies may have contracts with the same vendors resulting in a gap of needed resources		x	x	Response agencies should deconflict vendor contracts					
6	A response operation has inherent interdependencies, notably transportation (ESF-1) and restoration of communications which is itself dependent on electric power restoration		x	x	Planners must conduct due diligence to identify interdependencies and construct contingencies					
7	EOC may be overloaded by response related tasks and so emergency managers may be unable to meet requests for logistical needs in the field in a timely manner.		x	x	Look for alternative means to gain resources or pre-negotiate contracts for equipment, supplies, and services.					
8	At least one regional disaster plan groups ESFs into groups that do not match the ESF grouping plan of the NRCC.	x			Grouping of ESFs should follow a universal scheme.					
9	Equipment typing and naming conventions still vary across local, state, and federal jurisdictions.	x			Federal agencies should follow a universal scheme.					
10										
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	A	B	C	D	E	F	G	H
1	<p>ASSUMPTIONS & EXPECTATIONS IN DISASTER PLANNING, RESPONSE, & RECOVERY</p>							
		<p>ADMINISTRATIVE OR MANAGEMENT ISSUES</p>		<p>DIVERGENCE OR GAP</p>		<p>KNOWLEDGE OR TRAINING ISSUE</p>		
1	<p>Governments plan for disasters in order to prepare for complex, fast-moving situations by specifying chains of command, operational protocols, and collaborative best practices.</p>	<p>The mayor and top deputies of a major city co-opted the city's emergency preparedness office from the first moments of the storm's (Superstorm Sandy) arrival and instead coordinated local emergency functions directly from the mayor's office. The expertise and plans of the emergency managers was barely touched.</p>	<p>The hurricane plan that took so many years to develop was tossed aside. Many top city managers were not aware of how the plan was to work and because it was not used during the event they learned little about how it might have worked.</p>	<p>Officials not aware of how the plan worked. No buy-in on the plan from above or below the emergency preparedness office. Plan not followed during the actual disaster.</p>				
2								
3	<p>The outcome of disaster plans, in other words, is not to actually to <i>make</i> disaster recovery more effective (although this is certainly the intention of the people who work hard to prepare the plans), but rather to <i>convince people</i>—members of the public, other bureaucrats, bosses, funders—that disaster recovery will be effective. Disaster plans are attempts to make unknowables knowable, or at least thinkable within an ordered, rational framework.</p>	<p>State-level emergency managers generally perform the complex task of emergency response-coordination, setting priorities, and decision--making with limited or incomplete information--not by following pre-established plans, but by improvisation and contingency. State-level emergency managers generally perform the complex task of emergency response-coordination, setting priorities, and decision--making with limited or incomplete information--not by following pre-established plans, but by improvisation and contingency.</p>	<p>The problem with this kind of improvised state action is that response priorities were often not set deliberately or collaboratively. Jurisdictional boundaries—one of the main things disaster planning is supposed to help overcome—reasserted themselves, and key areas of the response (most glaringly, evacuations before the storm and conditions inside NYCHA public housing after the storm) were not given the attention they should have been.</p>					
4	<p>In the post-response phase local fire services</p>	<p>Local fire services not necessarily familiar with</p>	<p>An updated Structural Collapse Awareness</p>					

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C4 :

A	B	C	D	E	F	G	H	I	
1	EMI COURSE COD	LIST OF ALL-HAZARD COURSES OFFERED BY EMI							
2	IS-1.a	Emergency Manager: An Orientation to the Position - (2/7/2013)							
3	IS-3	Radiological Emergency Management							
4	IS-5.a	An Introduction to Hazardous Materials							
5	IS-7	A Citizen's Guide to Disaster Assistance							
6	IS-8.a	Building for the Earthquakes of Tomorrow: Complying with Executive Order 12699							
7	IS-10.a	Animals in Disasters: Awareness and Preparedness - (8/9/2010)							
8	IS-11.a	Animals in Disasters: Community Planning - (8/13/2010)							
9	IS-15.b	Special Events Contingency Planning for Public Safety Agencies - (7/22/2010)							
10	IS-18.13	FEMA EEO Employee Course 2013 - (1/2/2013)							
11	IS-19.13	FEMA EEO Supervisor Course 2013 - (1/2/2013)							
12	IS-20.13	Diversity Awareness - (1/4/2013)							
13	IS-21.13	Civil Rights and FEMA Disaster Assistance - (1/4/2013)							
14	IS-22	Are You Ready? An In-depth Guide to Citizen Preparedness - (10/25/2010)							
15	IS-26	Guide to Points of Distribution - (8/11/2010)							
16	IS-27	Orientation to FEMA Logistics - (2/8/2011)							
17	IS-29	Public Information Officer Awareness - (11/3/2011)							
18	IS-30.a	Mitigation eGrants for the Subgrant Applicant - (12/4/2012)							
19	IS-31.a	Mitigation eGrants for the Grant Applicant - (10/10/2012)							
20	IS-32	Mitigation eGrants Internal System - (11/1/2012)							
21	IS-33.13	FEMA Initial Ethics Orientation 2013 - (1/2/2013)							
22	IS-35.13	FEMA Safety Orientation 2013 - (1/2/2013)							
23	IS-36	Multihazard Planning for Childcare - (3/13/2012)							
24	IS-37	Managerial Safety and Health - (10/5/2012)							
25	IS-42	Social Media in Emergency Management - (7/18/2012)							
26	IS-55.a	Household Hazardous Materials – A Guide for Citizens - (6/26/2012)							
27	IS-56	Hazardous Materials Contingency Planning - (6/26/2012)							
28	IS-75	Military Resources in Emergency Management - (2/25/2011)							
29	IS-100.b	Introduction to Incident Command System, ICS-100 - (10/12/2010)							
30	IS-100.FDA	Introduction to Incident Command System (ICS 100) for Food and Drug Administration - (5/21/2010)							
31	IS-100.FWA	Intro to Incident Command System (ICS 100) for Federal Workers - (9/25/2009)							

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B5 : Executive Planning

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1	ID	COURSE	DESCRIPTION	TARGET AUDIENCE						
	R0335	Administration of Public Assistance for Community Recovery	The purpose of this 6-day course is to help students increase the administrative alignment of their organizations, people, process, and paperwork to meet Federal fiduciary standards for public assistance recovery. The topics include Stafford Act, OMB standards, FEMA policies and procedures, NIMS application, public assistance categories, A-G and the criteria for reimbursement of force account labor, force account equipment, materials, rented materials, and contracts. The methodologies include case study analysis, group discussions, and major simulation exercises transitioning from EOC operations to long-term recovery.	6-day on-campus course for local county or state or tribal officials who are or could be the Public Assistant Agent representatives for their community.						
2	R0306	Executive Analysis of Fire Service Operations in Emergency Management	EFO Program. This course is designed to prepare senior staff officers in the administrative functions necessary to manage the operational component of a fire and rescue department effectively. Since the subject matter is comprehensive, maximum use of the students' time is required. Some of the areas covered are risk assessment, incident documentation, media/political considerations, standards, legal mandates, capability assessment, damage assessment, emergency operations, Integrated Emergency Management System (IEMS), Multi-Agency Coordination Systems (MACS) including the Emergency Operations Center (EOC), and emergency information systems. This course meets the NIMS requirements for ICS 300 and ICS 400. Throughout the course, students are presented with a series of senior-staff-level issues that require extensive analysis and action. The actions implemented are applied to a mock community in order to evaluate the effectiveness of these decisions relative to the fire and rescue department's operational readiness. The course is very intense and uses lecture, case study, simulation	10-day on-campus EFO course for chiefs of department or equivalent. Chief officers or equivalent who head a major bureau or division within a fire department, e.g., suppression, prevention, training, emergency medical services, etc. Chief officers and senior deputies of State governmental fire organizations, e.g., State Fire Marshals and State Directors of Fire Training.* Field battalion-level officers from IAFC "metro-size" fire organizations also will be considered (organizations that serve populations in excess of 200,000 and/or have more than 400 uniformed personnel). Additionally, officers who eventually may assume one of these positions and are upwardly mobile in their organizations may be considered.						

Our latest report: Operational Lessons Learned in Disaster Response

A study of after action reviews from major disasters of the past decade to gain insight into lessons learned.

While after action reviews produce valuable lessons, lessons alone are not the end of the story. In fact, lessons learned should rightly be the beginning of a new chapter in a fire department's operational behaviors. Lessons without a corresponding change in operational behavior are not lessons learned.

This report identifies gaps and needs in first responder training and resources and presents solutions that serve to better prepare local-level fire services for all-hazard events and to interact with federal resources. The disasters studied were weather-related events that required responding firefighters to assume duties for which they were unprepared or for situations they never anticipated.

Download "Operational Lessons Learned in Disaster Response"

📄 PDF 2.5 MB

📖 EPUB 18.1 MB

U.S. Fire Administration

Operational Lessons Learned in Disaster Response

June 2015



Topics covered include:

- Resource and logistics management.
- Training, testing and exercising.
- Warning and notification.
- Assessing staffing requirements.
- Mutual aid.
- Large-scale event incident command issues.
- Critique and evaluation methods for organizational learning.