The California Commission on Health and Safety and Workers' Compensation

A Report on the "Forum on Catastrophe Preparedness: Partnering to Protect Workplaces," Held on April 7, 2006

CHSWC Members

Angie Wei (2006 Chair)

Allen Davenport
Leonard C. McLeod
Alfonso Salazar
Kristen Schwenkmeyer
Robert B. Steinberg
Darrel "Shorty" Thacker
John C. Wilson

Executive Officer

Christine Baker

State of California
Department of Industrial Relations

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Special Report: Catastrophe Preparedness at the Workplace

Introduction

On April 7, 2006, the Commission on Health and Safety and Workers' Compensation (CHSWC) held a public "Forum on Catastrophe Preparedness: Partnering to Protect Workplaces" in northern California. Recognizing that employers and workers should be prepared if a catastrophe strikes at the workplace, CHSWC embarked on a series of programs focusing on assessing and identifying how best to mitigate the potential enormous impact of such an event.

The first program, the National Symposium on the Future of Terrorism Risk Insurance, held on June 20, 2005, in Southern California, was directed to workers' compensation insurers and addressed their capability to respond to the demands of terrorism. (See CHSWC Issue Paper, http://www.dir.ca.gov/CHSWC/Reports/ImpactTerrorism-WC.pdf)

The second program, the Forum on Catastrophe Preparedness, was designed to provide the public with an opportunity to discuss ideas for safety in responding to terrorist attacks as well as natural disasters, learn lessons from other experiences, and consider areas where improvements need to be made. The forum was held by CHSWC in collaboration with the following sponsors and participants: the Labor and Workforce Development Agency, the Department of Industrial Relations (DIR), Division of Occupational Safety and Health Cal/OSHA, RAND, Service Employees International Union (SEIU), California Labor Federation, Governor's Office of Emergency Services, Department of Health Services, California Department of Insurance, Risk Management Solutions, Swiss RE, US Geological Survey (USGS), National Institute for Occupational Safety and Health (NIOSH), Center for Occupational and Environmental Health at the University of California Berkeley, and California Workers' Compensation Institute.

Timed to coincide with the 1906 Earthquake Centennial commemorations, this forum brought together leaders in homeland security, emergency response, and occupational safety and health to discuss individual, worker and employer preparedness for catastrophic risks. One hundred years after the catastrophic earthquake of 1906, earthquake risk and the risk of other catastrophes including terrorism continue to loom large for Californians and the nation. The nation learned from September 11th in 2001 that the risk of a catastrophe while people are at work and the risks to the workers who respond require the urgent attention of employers, workers and policymakers. More recently, the nation watched federal, state and local preparedness and response to Hurricane Katrina on August 29, 2005. At the time of the forum, the nation was cautiously monitoring the spread of the H5N1 virus posing a risk of pandemic avian flu. Such large-scale events have massive consequences for lives, families, businesses and communities, and local and regional economies.

The forum was attended by representatatives from the health, safety and workers' compensation community including: employers, labor, insurers, healthcare providers, transportation and construction firms, state, county, and local government organizations

and the general public. Journalists covered the daylong event attended by 200 interested people and organizations.

Four main themes were emphasized during the forum:

- Disaster preparedness is an occupational safety and health issue.
- Occupational safety and health is about labor and employer cooperation, as well as public and private partnerships.
- Preparedness includes first-responder safety, and the definition of first responder has been broadened to include employees themselves.
- The insurance system is a critical part of preparedness; compensation is necessary both for rebuilding structures and for providing support to the families of the deceased and seriously injured.

The expected outcome of this forum was to raise issues that need further discussion and resolution. The following is a summary of the main points and recommendations. A detailed Appendix includes highlights of the presentations from each of the speakers.

Summary

Preparation

Seismic Preparation:

- Building codes are designed to save lives, not save buildings or businesses, placing emphasis on business-continuity planning. Building codes apply only to new buildings, yet a lot of old buildings exist.
- Buildings located on fault lines and landfill are at greatest seismic risk. The San Jose area will experience the greatest aftereffects of a quake; the ground with its high water table and the buildings on top of it will continue to be in motion for minutes after an initial quake. Industrial areas that rapidly grew in the 1970s and 1980s and that used the relatively inexpensive "tilt-up" vertical wall-to-roof connection are particularly vulnerable.
- The most hazardous and the riskiest fault is the Hayward Fault along the East Bay from Fremont, Hayward, Oakland, and Berkeley, continuing to the Roger's Creek fault zone. More than 2 million people live on this fault zone.
- The likelihood of a repeat of the 1906 earthquake along the San Andreas Fault is not great, as it will take several hundred years to reaccumulate the strain; however, there is a greater likelihood that a smaller event, such as a magnitude 7 on the peninsular portion of the San Andreas Fault, will occur.

- Infrastructure damage from an earthquake or act of terrorism may prevent a planned response due to a lack of transportation alternatives and dispersed first responders.

- Most businesses and commercial property owners are not required to retrofit their buildings (there is an exception requirement for hospitals and unreinforced masonry only); this raises the safety risk in the area, as well as the business-continuity risk.

- Non-structural hazards in buildings, including falling hazards from ceiling or shelves, unsecured hazardous materials and fires, may be life-threatening, even if the building is up to code or retrofitted.

Hurdles to seismic and other preparedness:

- Many people do not have a full understanding of how rapidly a catastrophic event will unfold and that there will be no time for outside direction to save lives. The standard set for individual preparedness is now a 72-hour self-sufficiency standard; any coordinated and prioritized command-and-control official response will take at least 72 hours and will be based on a priority system.

- Threat evaluation is inadequate, as there is a conscious or unconscious expectation that government will provide full support. Although California has some of the best emergency response systems as a result of past experiences with disasters, even the most robust governments will be strained in the event of a catastrophe. Government and private emergency responders will not be able to handle all the demands during the time of the disaster.

Overcoming hurdles to preparedness:

- A business-continuity plan should be presented as an insurance policy. *"A community cannot survive a disaster unless its businesses survive the disaster."*

- Incentives are the only way to solve the retrofit problem and to encourage the use of other disaster-resistant materials for fire or floods; incentives could include federal and state tax and fee incentives, local-government fee and permitting incentives, banking interest rate and fee incentives, and retail discount incentives. Unfunded mandates cannot solve the retrofit problem.

- Preparedness is as strong as its weakest link; security guards who are most likely to be present on the premises do not have adequate training and compensation.

- Small business advocates advise that small businesses need simple solutions and specific recommendations to make preparation feasible; otherwise, preparation becomes a low priority that is forgotten when it is not a "hot issue."

- Mitigation, including awareness, education, self-assessment and professional consultation, are the best preparation steps, but preparedness is still a voluntary activity that may not end up a priority.

Simple Tips:

- Review publications on disaster-preparedness available from different organizations, including: the Governor's Office of Emergency Services (www.oes.ca.gov) handout of 10 ways to be prepared; RAND Corporation's reference card for preparing for terrorist attacks involving harmful types of chemicals and other agents (CBRN); and the US Geological Survey's copies of "Putting Down Roots in Earthquake Country."

- Collect emergency contact information for all employees, including employee personal cell phones and emails.

- Understand which employees live in close proximity to work operations versus those who might be isolated in a disaster; business-continuity plans need to take into consideration employees who live in close proximity since infrastructure damage may prevent more senior-level personnel who live farther from work from being available.

- Create a messaging system so that employees can get detailed information about alternative worksites and reporting instructions and so that families can call in to learn about the whereabouts or safety of an employee.

- Hold evacuation drills and educate and train all employees about workplace safety, "duck and cover," safety systems and precautions.

- Store a 72-hour Self-Preparedness Kit, including sturdy shoes, food, water and medications, in a car or at a work desk.

- Consider increasing water and food supplies for a built-in reserve as part of planning.

- Create scenarios based on 10%-30% decreases in the workforce which detail how work will continue to get done as part of the planning process.

- Create a staff succession plan, as no one can lead or manage during a catastrophe for days on end without back-up.

Partnerships

- Preparedness requires cooperation, communication and collaboration. Coordination, collaboration, and public-private partnerships, as well as labor-management partnerships, for disaster preparedness, mitigation and response are critical.

- Relationships should be established before they are needed; everyone should know who to call at each stage of planning, response and recovery; business cards should not have to be exchanged in the aftermath of a catastrophic event.

- Shared responsibility, shared accountability and shared leadership are ways Californians can work together to plan and prepare.

- One healthcare employer describes an internal and external collaboration to equate to "community readiness."

- Despite partnerships in preparedness, stakeholder negotiations will become inevitable during the recovery phase due to the "uncertain science" in some disasters.

- Dual-use preparedness structures may help overcome reluctance by different groups to adopt planning modes. The challenge, therefore, is to make preparedness activities and organizations sustainable and supportive of non-disaster functionality.

- An example of a local partnership is the Los Angeles Business and Industrial Council for Emergency Planning and Preparedness (BICEPP), a non-profit self-help corporation made up of businesses and municipalities.

First Responders

- New "Worker Safety and Health Annex" provides guidelines for the coordination of federal safety-and-health assets for proactive consideration of all potential hazards; ensures availability and management of all safety resources needed by responders; shares responder safety-related information; and coordinates among federal agencies, state, local and tribal governments, and private-sector organizations involved in responses to nationally significant events.

- Proper training and accurate hazard assessment determine correct equipment use.

- Infrastructure damage from an earthquake or act of terrorism may prevent a planned response due to a lack of transportation alternatives and dispersed first responders.

- Coordinated and interoperable communications methods/protocols will be needed in times of crisis management involving disparate responder groups.

- Standards still need to be aligned between Federal and State.

- Protective gear will continue to involve a trade-off between protection and acceptance/practicality.

- Following established response procedures requires accurate information, decision-analysis and communication.

- Better hazard assessment will dramatically improve safety.

- Non-routine events challenge the system and traditional training, requiring a different, integrated way of managing and coordinating.

Recommendations

- Preparedness requires cooperation, communication and collaboration.

- Public-private partnerships and labor-management partnerships should be included in disaster-preparedness plans and mitigation-and-response activities.

- Private-sector and government agencies may want to take a closer look at how best to be prepared at the local level.

- The private sector and the government need to assess if appropriate incentives are in place to encourage and offset the costs of mitigating and responding to disasters.

- Ongoing communication is needed between government agencies, employers, employees, and safety personnel for disaster preparedness, mitigation and response.

- In addition to police, firefighters, and emergency-management personnel, many other parties will need to be considered as emergency responders. They include employees, employers, security guards, healthcare workers and public-works workers.

- Small businesses need to address disaster-preparedness planning and training; small business advocates advise that until now, disaster preparedness has not been a priority for small businesses due to a lack of resources.

Next Steps

- Identify models of emergency planning that include public-private partnerships and labor-management partnerships.

- Develop preparedness materials and training for small businesses.

Appendix A

Highlights From the Forum Panels

Opening Remarks

Richard Baum, Chief Deputy Commissioner, California Department of Insurance
Max Kiefer, Assistant Director for Emergency Preparedness, National Institute for Occupational Safety & Health
Robert Samaan, Deputy Director, California Office of Homeland Security
Deborah Gold, Senior Industrial Hygienist, Cal/OSHA

- Richard Baum, Chief Deputy Commissioner, California Department of Insurance

There are four areas of activity that the California Department of Insurance (DOI) gets involved in during a disaster. (1) Consumer Services Response, under the State Emergency Act, dispatches employees to assist with food-and-shelter distributions with other agencies; (2) a hotline provides information about claims; (3) on-site, incident-disaster assistance teams set up sites with insurance companies to ensure that people can access resources in the event of lost paperwork and related confusion during an event; (4) Fraud Division representatives are dispatched immediately to sites to monitor adjuster activity to prevent potential "advantage-taking," to monitor debris removal to prevent unlicensed work, and to monitor claims violations; the Legal Division supports insurance claim regulations and the prosecution of unfair claims practices; and a Statistical Services Unit collects data relating to losses and assesses the number of insured and uninsured.

The Department of Insurance has created guidelines for a disaster program:

- Aim for simplicity. Make planning binders accessible. Outline a simple chain of command; develop of three or four charts and checklists that clearly described the duties, expectations and courses of actions for designated emergency leaders, as this approach makes it possible for staff to embrace a disaster program.

- Develop resources. Create a key contact list, including home phone numbers and emails (since a power outage makes any work contacts inoperable). Create employee-location charts, alternative worksites, and inventories of home-computing capabilities. Acquire 20 "bat phones" or Nextel mobile phones with walkie-talkie features.

- Prepare on an ongoing basis. Make disaster preparation a part of the usual work life through training, testing, and regular exercises that include the entire workforce. Build confidence that will support the effective management of an unexpected event.

- Max Kiefer, Assistant Director for Emergency Preparedness, National Institute for Occupational Safety & Health (NIOSH)

Preparedness requires cooperation, communication and collaboration. We can all be overwhelmed by the number of different plans and sets of actions, so open lines of communication can be helpful. The best lesson to be learned is from Katrina. The Katrina Lessons Learned Report is recommended reading at http://www.whitehouse.gov/reports/katrina-lessons-learned/

- Robert Samaan, Deputy Director, California Office of Homeland Security (OHS)

In California, we stress shared responsibility, shared accountability and shared leadership. This shared responsibility includes not only the public sector at the state and local level, but also the vast network of private sector resources. In government at the state and local level, Continuity of Government Operations (COGO) plans exist that let leadership know what to do should facilities become uninhabitable or should contact with key officials become lost.

We want to tap into the vast network of groups in the private sector and make sure that we are coordinating with them and that resources are shared. America's businesses form the backbone of the nation's economy. Small businesses alone account for 99% of all companies with employees' they employ 50% of all private-sector workers, and they provide 45% of the nation's payroll. The private sector and government agencies should take a close look at the plans in place for a disaster and ask the following questions: Does staff know what to do? Will businesses offer incentives for staff to be on call during a disaster? Are there plans to house displaced employees and their families? Is there enough food or preparedness to have food in order to function at work?

Homeland Security focuses on many issues to maintain safety and security while not impeding business operations. Risk mitigation involves ensuring that communication is open and includes everyone. For example, all licensed security guards are required to take a four-hour course which includes terrorism-awareness training focusing on what to look for and who to report it to. Everyone can benefit from such training to be aware of surveillance at key facilities where someone might be monitoring activities or taking notes, using cameras, maps or binoculars. Everyone should be aware of suspicious questioning, such as someone attempting to gain information about a facility or its personnel by phone, in person or email, as well as of tests of security or attempts to penetrate or test physical security. One federal program to strengthen vulnerabilities is the Buffer Zone Protection Program (BZPP). This program provides $50,000 for designated sites, and there are over 200 sites in California.

Another aspect of communication is meeting with other businesses that share a building, facility or business park. First responders, emergency managers, community organizations and utility providers should be consulted when preparing a disaster-preparedness plan, as well as, shippers, and other regular business partners. Plans should

be shared with other businesses and those businesses should be encouraged to begin their own continuity planning.

Some examples of how California OHS is prepared to prevent threatening people from entering the U.S. and particularly California include initiatives with port security, border security, mass-transit security, and public-safety officials. OHS participates in the area maritime-security committees throughout California, chaired by the Coast Guard; there are committees in Oakland, Long Beach and San Diego. Forty-three percent of the nation's commerce comes through California's ports, so no incident is just a local one. The Governor's Strategic Growth Plan contains $2 billion in port-improvement measures. Mass-transit security is managed by the four regional transit-security groups in Los Angeles, Sacramento, the Bay Area and San Diego. These groups are required to prepare regional threat-assessment plans by working together so that relationships will already exist. It is hoped that regional information-sharing plans will help prevent terrorism. On the borders, the San Diego infrastructure system needs to be completed. The Governor has asked for $55 million for completion of the border-fence project. New border-patrol agents and technologies have also been requested.

Homeland security needs are based on risk-based funding, and this will place more money in the hands of local governments. California OHS believes that the population is a key driver of risk; therefore, California is at the top of the list for funding initiatives. However, for Fiscal Year 2006, Congress cut the Homeland Security Grant Program and the Urban Areas Security Initiative Grant Program from $4 billion to $3.3.billion. Therefore, there will be reductions throughout the state. The OHS has dropped San Diego and Sacramento from the Urban Area Security Initiative list.

Finally, regional information-sharing is promoted through the State Terrorism Threat Assessment Center (STTAC) and four regional terrorism threat-assessment centers. These regional centers are "fusion" centers to share information; they are multi-jurisdictional with law-enforcement and other public-safety officials from federal, state and local governments. The hope is to integrate the structure so that there is private-sector representation through the terrorism liaison-officer program. (This program is still in development.) The new OHS website is www.homeland.ca.gov.

- Deborah Gold, Senior Industrial Hygienist, Cal/OSHA

Even before 9/11, Cal/OSHA was involved in protecting emergency responders. The Hazardous Waste and Emergency Response Standard ("Hazwoper"standard) and other regulations, such as those for blood borne pathogens, fire brigades, emergency-action plans, personal-protective equipment and respiratory-protective equipment, have provided guidance to employers and enforcement authority to Cal/OSHA to protect workers. Regulations allow Cal/OSHA to intervene with local fire, police and hazardous materials (HazMat) agencies and with private employers to ensure that the programs are in place.

Over the years, Cal/OSHA has provided technical assistance in emergencies to first responders. Operating under the principle of "risk life to save life," firefighters and other responders have been questioning the types of risks and risk-reduction measures that can be taken. For example, in 1983, Santa Clara country adopted a model hazardous materials-storage ordinance to ensure that firefighters had advance warning of hazardous substances that were present and to require facilities to take protective measures. This ground-breaking ordinance had national impact; it led to the adoption of similar provisions in the Uniform Fire Code, and later in California to the Waters bill.

September 11th did dramatically highlight the successes and failures in protecting workers in catastrophes and their aftermaths. OSHA had a high-profile presence at the World Trade Center site and in the response-and-recovery effort. State plans, including California's plan, were used for response and recovery. We can rightly point to measures of success, particularly that there were no fatalities during the difficult clean-up project. However, we also have to acknowledge that thousands of emergency workers and volunteers are currently being tracked for long-term health effects. Some have already been forced to retire on disability from the effects of working in the rubble of the World Trade Towers. The subsequent work by NIOSH and RAND Corporation in producing the "protecting emergency responder" documents has accelerated the movement of responder health and safety into the mainstream occupational safety-and-health arena.

Since 2001, Cal/OSHA has been involved in two other major catastrophes: the Southern California fires; and, assisting OSHA, in the recovery effort of Hurricanes Katrina and Rita. Currently, Cal/OSHA is preparing for the possibility of an avian influenza pandemic. The potential scope of pandemic flu is worldwide, and should a pandemic actually occur, it may last in phases for a year or more. Operations involving infected animals are likely to resemble "Hazwoper" (Hazardous Work Operations and Emergency Response) operations, in that they will be site-specific and zones of control can be set up. Exposures to healthcare workers will be widespread and will strain our infection-control resources.

In the emergency-response world, we talk about an "all-hazard response" or "all-hazard planning." Planning is now underway for infrastructure to support a broad range of negative possibilities. For the past several years, Cal/OSHA has been planning internally and with other agencies, forming Cal/OSHA emergency-response teams in the north and south, and has worked with OES to update the administrative order which defines responsibilities in emergencies. This order now parallels the National Response Plan and the Worker Health and Safety Annex, giving authority to protect emergency responders within the incident-command structure. Cal/OSHA has participated in drills at local facilities, such as refineries, and in the Spills of National Significance (SUNS) exercise in 2004. In 2005, it participated in the planning of the Golden Guardian Statewide Emergency Preparedness exercise. During the exercise, emergency-response teams were sent to three sites, and observers were sent to two hospitals. These activities revealed that the level of preparedness and response was not as high as it should be.

While Cal/OSHA is deepening its involvement with incident commands and emergency-operation centers, it continues to protect workers through traditional consultation and enforcement programs in the planning and recovery phases. These include: the process safety-management offices; interactions with the Department of Health Services and other agencies in planning for avian influenza; and inspections of emergency-response organizations for compliance with standards. These are all examples of trying to ensure that when an emergency occurs, employees have the best protection available. In the aftermath of a catastrophe, there is tension between trying to return to some form of normalcy, which is protective in itself, and slowing down and planning for worker health and safety. Good planning does save time and resources; however, it is fundamentally unfair to ask recovery workers to sacrifice their health and safety while they are planning occurs. One solution is to respond in real time with regulatory flexibility for first an emergency regulation and then a permanent regulation to be enacted.

Since 9/11, all levels of government have been working to address emergency-response issues. Two critical elements that public agencies often ignore are private industry and labor. Employers and employees are uniquely knowledgeable about the details of operations, such as sharing equipment and gaining access to facilities. When unions and management also cooperate with government in the planning process, we increase our ability to foresee and address problems. This cooperation also brings credibility.

Opening Keynote Speaker

- Harvey Ryland, President & CEO, Institute for Business & Home Safety, and Former Deputy Director of FEMA

http://www.dir.ca.gov/chswc/forumpresentations/Harvey%20Ryland%20CAHealth.ppt

The Institute for Business & Home Safety (IBHS) is a non-profit insurance trade association created by Swiss RE and other insurance and reinsurance companies to help protect homes and families, keep businesses open, and preserve jobs. It is similar to its sister organization, the Insurance Institute for Highway Safety. Both organizations are focused on protecting people and their property. IBHS is a nation-wide, all-hazard organization. The IBHS motto is that "a community cannot survive a disaster unless its businesses survive the disaster."

Small businesses are important. They are the primary employers and contribute to a large portion of the economy: 98 % of all firms in the U.S. are small businesses employing 50% of workforce; 85% of small businesses employ 10 or fewer employees, and they are responsible for 44% of the nation's payroll and generate 41% of U.S. business receipts. However, small businesses are not well protected from disasters; they have the least resources to prepare and recover from natural disasters.

Disaster protection for businesses needs to be a public value. Businesses need business-impact and recovery planning, property and asset evaluation and protection, and pre-disaster property protection and post-disaster recovery plans. They also need incentives to plan for disaster protection, which could include:

Federal incentives:
- Income tax deductions / credits for disaster-resistant facilities.
- For Hazard Mitigation grant program, provide additional funding for states with a mandatory state-wide building code.
- Preferred SBA loans if businesses have taken disaster-resistant action.

State incentives:
- No sales tax on disaster-resistant materials.
- No increase in property assessment for disaster-resistant structures.
- Reduced property-transfer tax

Local government incentives:
- Reduced permit fees.
- Fast-tracking permit process.
- Property tax and sales tax incentives, as listed under the state.

Banking/financial incentives:
- Lower interest rates for construction loans.
- Lower interest rates for mortgages.
- Lower interest rates for business-improvement loans.
- Reduced loan-application fees
- Reduced down-payment requirement.

Retail incentives:
- Reduced architect / engineer fees.
- Material manufacturers discounts.
- Reduced moving-company fees
- Discounts from furniture / office-supply dealers.
- Discounts on landscape design, installation and maintenance.
- Monthly discounts on utilities: energy, telephone, cable and security

In conclusion, the recommendations for California are:
- Help make disaster protection a public value.
- Help educate business owners and managers.
- Promote new disaster-resistant construction.
- Promote retrofitting of existing structures.
- Promote adoption and enforcement of strong commercial-building codes.
- Establish incentives.

Impact of a 1906 Earthquake Today

What happened in 1906 and how California would respond today.

Mary Lou Zoback, Senior Research Scientist, United States Geological Survey (USGS)
Jeanne B. Perkins, Earthquake Program Manager, Association of Bay Area Governments (ABAG)
David Keeton, Risk Manager, Swiss Re

- David Keeton, Risk Manager, Swiss Re
  http://www.dir.ca.gov/chswc/forumpresentations/David%20Keeton%20SRA1.ppt

In 1906, San Francisco was an emerging economy. The 7.9 magnitude earthquake was felt from Los Angeles to Oregon, with some of the most severe shaking in Santa Rosa. The fault rupture was almost 300 miles long on the San Andreas Fault.

Unexpected outcomes changed disaster response and changed the insurance industry. Before 1906, the 1868 earthquake was considered "the big one." Emergency preparedness in San Francisco was underestimated. The Chicago and Baltimore fires were warnings and lessons for what could happen in San Francisco. The San Francisco Fire Chief sued the city to develop a secondary, independent water-supply system, in case the water supply was damaged. Most building owners had purchased fire insurance, but earthquake insurance did not exist. Insurance did not cover fires caused by earthquakes. About 200,000 people, nearly half the population of the city, were left homeless. The military was called in to put out fires by dynamiting firebreaks, which had the additional consequence of damaging more buildings as well as starting new fires. After the earthquake, eighty percent of the fire liability was paid, and insurers decided to participate in the city's recovery. An immense sum of money was paid into the city. An independent water supply now exists. Earthquake insurance now exists. Fires from all causes, including earthquakes, are now covered.

In supplemental material provided by Swiss RE, the financial impact of a similar earthquake today would "result in direct and indirect losses in excess of $200 billion (public buildings and infrastructure not included), with an estimated $45-$60 billion covered by the insurance industry. A large share of the losses would be in the city and county of San Francisco, due to the high concentration of valuable and old residential building stock." Fires following the earthquake would add to potential losses, but damage would depend on wind conditions, the density of wood constructions, and the degree that fire fighters are able to navigate through the aftermath.

- Mary Lou Zoback, Senior Research Scientist, United States Geological Survey
  http://earthquake.usgs.gov/regional/nca/1906/simulations/

The United States Geological Survey (USGS) forecasts for the Bay Area a 62% chance of one or more major damaging earthquakes in the next 30 years, based on the seven major fault zones in the Bay Area. The most hazardous and riskiest fault is the Hayward Fault along the East Bay from Fremont, Hayward, Oakland, and Berkeley, continuing to the Roger's Creek fault zone. More than 2 million people live on this fault zone. The likelihood of a repeat of 1906 earthquake along the San Andreas is not great, as it will take several hundred years to reaccumulate the strain. However, a smaller event, such as a magnitude 7 on the peninsular portion of San Andreas, has a much higher likelihood.

USGS animated simulations presented during the forum demonstrated the timing and scope of a large earthquake similar to 1906, with shaking traveling at 7,000-8,000 miles/second. Within 30 seconds, everyone would have felt the earthquake. The 1906 quake started two miles offshore from San Francisco. Because of this starting point and

rupture away from the area along the fault in both directions, the damage to San Francisco was less than it would have been. During an earthquake, the fault slips, releasing energy, and a fault offset of up to nine feet of land, occurs. In one simulation, even after the earthquake has passed and the rest of the region has stopped shaking, Silicon Valley and Santa Clara Valley continue to shake. Likewise, Santa Rosa would experience prolonged shaking, including vertical upheavals of up to one foot. Freeways are on bay fill and subject to liquefaction, so even if the East Bay span of the Bay Bridge is retrofitted, the approach via highways may be impassible due to road failure and sinkage. Liquefaction would also rip apart water and gas pipes. In addition, housing stock, which dates back to 1930, would be vulnerable, especially in San Francisco. Rent control has slowed down the retrofit process, creating a disincentive to landlords. The likely impact for a repeat earthquake would be on a Katrina-scale catastrophe; it would be even a larger impact than 9/11. There would be hundreds of thousands of displaced people, thousands of deaths, and large numbers of people needing hospitalization.

- Jeanne B. Perkins, Earthquake Program Manager, Association of Bay Area Governments
  http://www.dir.ca.gov/chswc/forumpresentations/Perkins-CHSWC-RAND-Apr06.ppt

When developing hazard-mitigation plans, the Association of Bay Area Governments (ABAG) includes weather hazards along with earthquake hazards. As many as 53 hazard maps are available online. ABAG and USGS have interactive information about earthquake risks by geographic location, zip code, water district or specific addresses. Transportation and other infrastructure systems are critical to the area's economy. The biggest driver of macroeconomic impacts is not damage to individual buildings but damage to infrastructure systems. Earthquakes affect transportation via liquefaction and collapse of roads, airports, bridges. Earthquakes affect utilities through liquefaction and shaking and because water and gas lines break. Housing becomes uninhabitable for thousands of people, creating the need for shelter; multi-family wood-frame homes pose the greatest risk.

If a San Andreas 7.9 magnitude earthquake occurred today, there would be over a thousand road closures in the Bay Area. Airports would be closed with the exception of San Jose, which completed a retrofit in 2003. (Nevertheless, disruption at San Jose Airport is inevitable as air traffic controllers would probably not be able to find a transportation route to relieve workers.) If a 6.9 magnitude quake occurred on the Hayward fault, there would be 1500 road closures, and bridges and tunnels would not be usable; the entire East Bay would be isolated. The San Francisco and San Jose Airports would probably be open, but would face similar disruptions due to the same air traffic-controller staffing issues; Oakland Airport would be closed. Surface rupture in an earthquake poses the greatest risk of severe damage.

Housing would be severely damaged from a large earthquake on either fault. About 150,000 housing units would be uninhabitable (compared with 300,000 in Katrina), with 350,000 people displaced. Of the homes that would be damaged, single-family homes

and mobile homes will face only a small percentage of damage. The real risk is in multi-family, soft-story wood-frame homes; about 66% of these homes would be uninhabitable in a Hayward fault earthquake. The percentage would be even greater when all multi-family homes are compared to single-family homes. The reason housing is relevant to this conference is that employees may not have a place to go home to at night. They may not be able to report to work if they are displaced. It could take up to six or seven months for interim housing for employees to be available and before life begins to come back to order. These transportation and housing issues also relate to staff planning, as it may not be the head of a department who brings systems back up, but someone in the department who lives close by.

Is California Prepared if a Disaster Strikes at Work?

The current status of workplace preparedness from the perspective of multiple disciplines.

Phyllis Cauley, Chief, Preparedness Branch, Governor's Office of Emergency Services (substituting for Henry Renteria, Director, Governor's Office of Emergency Services)
Robert Balgenorth, President, California Building & Construction Trades Council
Betsey Lyman, Deputy Director, Emergency Preparedness Office, Department of Health Services
Michael Nolan, President, California Workers' Compensation Institute

- Phyllis Cauley, Chief, Preparedness Branch, Governor's Office of Emergency Services

California faces many risks beyond earthquakes. There are arguably the strongest systems in place in California, as a result of numerous disasters faced over time. However, in the event of a catastrophe, even the most robust government systems will not be enough. Therefore, more than ever, all partners in government and the private sectors need to leverage resources to ensure preparedness for all hazards. The Standardized Emergency Management System (SEMS) has been used by state and local government for over ten years, a result of legislation passed after the Oakland Hills fires in 1991, which noted the need for a standardized, multi-discipline response structure. Everyone should be aware that every county and city has an Office of Emergency Services; the Bay Area has very good offices. The reality is that government and private emergency responders cannot and will not be everywhere; therefore, everyone needs to be prepared. The "Be Smart, Be Responsible, Be Prepared, Be Ready!" campaign hopes to motivate residents to act in their own best interest to prepare for disasters. (A brochure on this program, supported by First Lady Maria Shriver, was included in conference materials.)

Key questions are: How do you know when an event has happened? Or where do you go for information after an event has happened? There are information systems: we all know the emergency alert system on the radio, but there is also an emergency digital information service (EDIS) which can send alerts to pagers. Other counties and cities have expanded their systems; e.g., Contra Costa County activates the above systems,

accesses weather systems and has sirens and automated calling systems due to the risk and vulnerabilities of its many refineries, and San Francisco is purchasing a siren system.

The private sector and individuals are really the first responders. These are the people who give CPR and create evacuation plans. OES wants to build public/private collaboration, with private resources and volunteers. Eighty-five percent of infrastructure is controlled by the private sector, so collaboration is critical. Senate Bill (SB) 546 was signed last year to facilitate a public/private partnership. It authorizes OES to form collaborations with businesses to make it easier to share resources and expertise.

- Robert Balgenorth, President, California Building & Construction Trades Council

The State Buildings Trades Council was organized in 1901 and has a century of service in disasters. In the 1906 earthquake, the fire reduced the city to rubble and ruin. Unions affiliated with the new State Buildings Trades Council lent their skills in the clean-up and rebuilding of the city. They also helped organize an enormous relief effort to provide food, clothing and shelter to San Francisco residents who lost everything from the earthquake and the fire. However, after the toxic gases, dust and smoke that came out of the 9/11 rubble, it was clear that we were not prepared for disasters of this scale. The fire that burned for months under the debris of 9/11 produced a cauldron of toxins. The first responders were exposed initially, but construction workers worked in those conditions for months. One construction worker described the hazards as 1,000 times the hazards typical of any construction site.

Workers at 9/11 and in the area of Katrina faced additional hazards, including the health and mental hazards of handling human remains. One report says that by early March of 2002, about 200 New York firefighters were on medical leave, and nearly 700 had respiratory problems from World Trade Center duty. An untold number of construction workers are experiencing the same problems today. By spring 2002, about 100 of the 395 first responders from California had filed workers' compensation claims due to illnesses from the collapse of the World Trade Center. The full extents of health effects on nearby residents, first responders and clean-up crews will not be known for years.

The bottom line was that the building trades needed a completely revamped training system to provide for those workers at clean-up operations. The Building Trades Department of the AFL-CIO responded to this need by establishing a disaster-training program in its non-profit Center to Protect Workers' Rights. The Center conducts research and provides services and training for the 15 national construction unions. Its partners are the building and construction trades unions, the Department of Labor, OSHA, NIOSH, and the International Association of Firefighters. The purpose of the Center's training is to reduce the injuries of skilled construction workers who respond to a disaster, to increase awareness of health-and-safety hazards at a disaster site, and to reduce exposure to hazards, especially with respiratory protection. This train-the-trainer program has been conducted for about 1500 trainers, who then train rank-and-file members of their own unions.

If a large-scale event occurred in California, a coordinated response at all levels would be needed to deal with it. However, in California, we still have a long way to go to be prepared for a World Trade Center or Katrina-type disaster. As we approach 5 years after 9/11, there is still very little coordination of disaster response among counties and cities and other local authorities. Local and state-wide plans often fail to mesh smoothly. In 1994, the Northridge earthquake collapsed bridges on the Santa Monica freeway, the most heavily-used highway in the world. Congress quickly appropriated funds, the Governor cleared the contracting red tape, and the contractor who won the bid hired skilled union construction workers who worked around the clock. The freeway was rebuilt in 66 days, less than half of the time stipulated by the State of California. That was an example of a coordinated disaster-response plan.

It was six days before FEMA sent assistance to most Gulf Coast communities hit by Katrina. That is unacceptable. Each community needs a program to deal with the aftermath of a disaster, but to be effective, the program has to fit into the plans of its neighboring communities and the state and federal agencies. Each community should have a plan to mobilize the construction workers who will be needed to rebuild and dig out. A logical contact point in any community in California would be one of the 22 local building trades' councils. Each council is made up of the local union affiliates of most of the major construction unions that would be involved in a disaster clean-up operation. One of the essential elements of each program is a core of construction workers trained in hazard recognition, the use of personal protective equipment and decontamination. An incident command system is also one of the critical elements of any local program that is part of the Center's training. To date, there are 177 union construction workers from California who have completed the disaster-training course offered by the Center.

Because of the dedication of New York's union workforce and volunteers from building-trades unions from California and around the country, it took only 8 ½ months to complete the clean-up of the World Trade Center site. New York authorities first estimated that it would take between two and three years to clean the site up. At the Pentagon, a workforce of thousands completed the rebuilding of the damaged areas, and the Defense Department offices were reoccupied 28 days earlier than their one-year schedule. In an article during the 9/11 clean-up, one union worker was quoted as saying, "My union brothers and sisters all worked in there, so whatever hand I can lend…every union job in NY is shut down, they're all my union brothers and sisters, we're all banding together…" That is the spirit and attitude shown by New York construction workers and by members of the building-trades unions all over the county who felt the same way. The State Building Trades Council is prepared to form alliances so that every community plan will incorporate skilled construction workers trained in disaster clean-up and rebuilding.

- Betsey Lyman, Deputy Director, Emergency Preparedness Office, Department of Health Services

In preparation for a possible pandemic-influenza outbreak, we anticipate detected cases of avian influenza either on the east or west coast of the U.S. sometime this summer; but that is restricted to a bird-to-bird transmission. As long as appropriate safety precautions are taken, e.g., ensure that poultry is cooked, we do not see this as an issue for a pandemic. However, it is possible that the virus may mutate into a person-to-person transmission. That is the point when we become very concerned about an outbreak.

There are three critical differences between a pandemic and other disasters: (1) a pandemic is likely to last 18 to 24 months, with up to 2 or 3 waves of particular intensity of illness; in the 1918 pandemic that caused 50 million deaths, the first wave to hit San Francisco was relatively mild; the real impact was in the second and third waves; (2) a pandemic will be a world-wide event within 40 days; solutions such as shifting work or workforces to another region are therefore insufficient; (3) unlike seasonal flu, which affects the elderly and others with significant medical problems, the pandemic often affects people who are young and otherwise health and who are the core of an employed society. As of now, there is no vaccine, and the one course of treatment, anti-virals, are in extremely short supply. Medical treatment is not readily available.

Every business should anticipate up to 30% or more of the workforce could be out of work at any particular time during a pandemic. The reasons for this could include: because the individual is sick; because they are caring for sick members in their family (especially if hospitals are overwhelmed with even sicker individuals); because if schools are closed, there will be issues of child care; because people who are well do not want to be in a group setting if there is contagion risk. Further, issues of transportation will be affected as drivers may not be available and routes may not be functional.

We recommend that employers look at their continuity-of-operations plan. These plans were developed for Y2K, and they exist for short-term disasters, but how would they deal with an 18-24 month event? Key questions are: What are the essential functions to maintain? What are the succession plans for key staff? What are the travel policies? Will there be travel restrictions at a time of uncertainty about the contagion? What can be done at the worksite to reduce exposure? Should non-essential worksites be closed? We also strongly recommend thinking about the psycho-social needs of employees. For employees, we recommend staying healthy through exercise, eating well, and maintaining weight. We also recommend practicing good hand hygiene, coughing into elbows instead of hands and keeping hands clean, as well as getting seasonal flu shots to maintain well-being, even though they would not be of the same strain of a pandemic. We also recommend ensuring that there is enough food to manage without trips to the grocery store. The economic disruption of a pandemic would affect food production, distribution and other supply sources, requiring the storage of some packaged foods.

- Michael Nolan, President, California Workers' Compensation Institute

The insurance industry is involved with disaster preparedness as a resource to the community and finances a great deal of research on safety preparedness. Dissemination

of information via websites and seminars is another resource. For small businesses, the insurance industry produces quarterly newsletters on safety and insurance issues. The underwriting process itself is a risk-management activity.

Q&A:

- Where should employers or workers get their information about preparedness for disasters? In general, information is available at local OES offices and on the state's website. People can connect with OES offices and other business- and family-preparedness organizations. Local governments, including the health departments, are key.

- Are poultry workers going to be the first people to contract avian flu? Close proximity to birds is indeed a common factor. The Department of Food and Agriculture, is the lead department for those who are either bird handles or poultry workers, providing information to those constituencies and involved in monitoring and surveillance of high-risk workers.

- What is the integrity of the insurance system in the aftermath of a disaster? Can workers count on it for benefits? What about homes without earthquake insurance that are destroyed in an earthquake: will people rebuild their homes or will they leave the state? Underwriting involves managing risk, and regulations dictate how much exposure is permitted, but for workers' compensation, a backstop, like TRIA, is needed. Social-political issues make insurance coverage limited, until it is required.

- For pay and time-off policies, what is the impact that might be on the state disability system/short-term disability system? If you look at SARS in Toronto, Canada, they established voluntary quarantine and isolation of the sick and eventually provided financial remuneration. Given the scale, this could possibly become a federal issue.

- What are other organized efforts of response? Urban Search and Rescue (USAR) task forces are organized nationally, through fire departments. Organized volunteers, such as engineers, architects and design officials are coordinated by OES, and they inspect buildings after earthquakes. On the neighborhood level, NERT/CERT emergency-response teams do low-level search and rescue and response to aid fire departments after an event. NERT/CERT volunteers are registered with a local, accredited disaster council (city or county), and they are covered by state workers' compensation coming out of the General Fund.

- Is a public/private partnership able to spread risk among insurers and employers feasible in today's political climate in California? This may be best addressed at a federal level. TRIA is one example of a backstop for terrorism, but there is still an issue of wind damage and other catastrophes. Otherwise, the insurance industry will take on only certain types of risk.

Employer and Worker Preparedness for Natural Disasters and Terrorist Attacks
Practical information on how to respond in the case of natural disasters and terrorist attacks as well as how California can improve worker and business preparedness through partnerships and other means.

Lynn Davis, Senior Political Scientist, RAND
Judith Freyman, Vice President, Western Occupational Safety and Health Operations, ORC Worldwide
Douglas Bloch, Research Analyst, Service Employees International Union (SEIU)
Skip Skivington, Director of Operations, Kaiser Permanente
Robert M. Fredianelli, Director, Area I, Operations Maintenance and Construction, PG&E
Scott Hauge, Founder, Small Business California and President, CAL-Insurance & Associates, Inc.

- Lynn Davis, Senior Political Scientist, RAND

RAND has created safety-response scenarios for different terrorist attacks involving weapons with harmful agents:

- **Chemical:** Sarin, and Hydrogen Cyanide. **Goal:** Find clean air. **Response 1:** If attack is outdoors, get inside the nearest building. Move upstairs, find anterior rooms, sealing room with duct tape. Then decontaminate and get medical treatment. **Response 2:** If attack is indoors, open window to get clean air. If windows don't open, get outside the building on the street or on the roof, using an escape hood, if available. Then decontaminate and get medical treatment.

- **Radiological:** Americium-241 (Short-term radiation), Cesium-137 (long-term contamination). **Goal:** After an explosion, avoid inhaling the dust that could be radioactive. **Response:** Cover nose and mouth or use a face mask.

- **Nuclear:** dirty bombs. **Goal:** Cannot protect from initial effects, but when that mushroom cloud rises up and starts to move downwind from attack, it is very important to protect yourself from additional fallout. **Response:** Walk away and out from under that radioactivity that will fall; if cannot walk out of the area, then the next best strategy is to get as far underground as possible, as much ground or concrete between you and the fallout; or, if you are in a high building, get in the upper floors, not the top floor but the upper floors.

- **Biological:** Smallpox (Contagious), Smallpox (Contagious). **Goal:** It is unlikely that we will know when an attack has happened, and we will know only when public health officials learn about the symptoms of the attack. **Response:** It depends on the biological agent, and we will have to rely on recommendations from public health officials.

(A reference-card guide was provided for conference attendees and the link is both on the RAND website and the CHSWC website about the conference.)

http://www.rand.org/pubs/monograph_reports/2005/MR1731.2.pdf

- Judith Freyman, Vice President, Western Occupational Safety and Health Operations, ORC Worldwide
  http://www.dir.ca.gov/chswc/forumpresentations/Perkins-CHSWC-RAND-Apr06.ppt

ORC represents the perspective from large employers, many with global operations. These networks of employers tend to be the leaders in occupational health and safety and are proactively oriented. Our view of the preparedness situation is not particularly positive at this time. We have had several wake-up calls and one is looming. This has triggered a reassessment and a down-grading of readiness and preparedness. The pre-Katrina readiness varied by industry. Oil, chemical, utility and defense industries had put a lot of resources, planning and drilling into efforts. The focus was on isolated or discrete events such as fires, earthquakes and terrorist attacks, but those efforts were limited. They involved written plans, some training, some exercises, first-responder orientation, and no or minimal community outreach. That is, the preparedness was left to the first-responder part of the organization; the rest of the organization did not necessarily connect with emergency plans, and plans did not involve the rank-and-file employee.

In the post-Katrina view of the world, it is understood that a very comprehensive risk assessment is needed. A very dynamic planning process is needed, which means it has to be looked at on an ongoing basis. Companies are now saying that they can never be too prepared. In Katrina, they had to provide housing and food to employees just to resume operations. We have discovered that you have to empower the employees; they have to be engaged in the process. When a huge catastrophe happens, everyone has to be involved. Employers did not know where their employees were during Katrina! They are now putting together contact lists and figuring out ways to communicate. Finally, public/private sector collaboration is critical. Companies had to overcome obstacles when dealing with government. Companies ran into FEMA roadblocks. Their supplies which were supposed to go to their own employees in order to resume operations were confiscated. You can be prepared, but when dealing with government, things can change rapidly, and that fact has to be part of the planning.

Avian influenza preparedness offers a new beginning for disaster preparedness. Given the large scope of the problem, it places a new focus on business continuity planning (BCP). We have BCP, but it is not as rigorous as it needs to be, such as for a 4-6 week downtime period. We are learning that maybe we cannot expect everyone to work remotely because the information systems (IS) department cannot handle the capacity. The public/private partnership issue is even more significant with avian flu. There is a lot of talk about partnership but there is very little action, so we need to focus on these issues. CHSWC is to be commended for helping raise these issues.

- Douglas Bloch, Research Analyst, Service Employees International Union (SEIU)

Our union represents over 250,000 property-services workers around the country, including janitors, doormen, security officers, building maintenance people, landscape workers, those people who are on the ground when emergencies happen. I work with SEIU Local 247, which represents over 5,000 private security officers in Alameda, Contra Costa, and San Francisco counties. Our members help protect commercial office space, government buildings, public utilities like water plants, nuclear power plants, ports, refineries, and retail businesses, like banks. Security has become one of the fastest-growing industries in the state and the country. There are estimates that there are twice as many private-security officers in the U.S. as there are police. .

We are talking about first responders today, but we do not seem to include security officers in the discussion. We read about planning and drills in cities or counties, but we have never been invited. We talk a lot about 9/11 and the tragic loss of fire and police at the World Trade Center. What we never talk about is the fact that when the first plane hit the tower, security officers were the ones who began evacuation procedures. Those were SEIU members, and we lost several members that day. When the police and fire, the other first responders, arrived on the scene, they talked to security.

We heard about road and bridge closure problems in scenarios for future disaster events. About 70% of police and fire personnel in the city and county of San Francisco live outside of the city. Therefore, if there is an earthquake or emergency, those people are going to be stuck outside, and it is going to be security officers who are going to be in the buildings. If that is the case, it will be important to have well-paid, well-trained security officers who are involved in planning disaster preparedness and recovery.

Our union has been working hard to raise standards in California and throughout the country. We passed Assembly Bill (AB) 2880 which requires 40 hours of training for new security officers in the state and 8 hours of annual training for every else, some of the highest standards in the country. However, the truth is the training that security officers get is minimal and inconsistent. The way the industry is structured, incentives are for the contractors to keep the costs down, so what security officers probably get are a video and a take-home test, and they often get the answer key to go with it. In addition, there is minimal enforcement. Last year, we spoke with the California Bureau of Security and Investigative Services (BSIS) and were told that 80% of the companies in the state still were not in compliance with the law and only two enforcement staff members are assigned to ensure that all companies are in compliance.

In New York City, security officers who represent almost 100,000 building-service workers, partnered with the police and fire departments, and the John Jay College of Criminal Justice to develop a security training program called NY Safe and Secure. We met with building owners and different stakeholders and started a joint labor-management training trust fund that is governed by the different parties that have a stake in this. This program has been successful and has been going on for several years. We are exploring something like this for the Bay Area but have had tremendous resistance from building owners, building managers, and especially security companies. We are here today to say that if anybody wants to partner with us, please come up and talk to us.

Security is a critical part of the first-responder network. Security officers need better training and more incentives to stay on the job to provide professional disaster support.

- Skip Skivington, Director of Operations, Kaiser Permanente
  http://www.dir.ca.gov/chswc/forumpresentations/Skip%20Skivington%20presentation.ppt

9/11 and the anthrax attacks hit our organization front and center. We follow what D.A. Henderson, MD, MPH, a man who was responsible for almost single handedly eliminating small pox on the planet, recommends for community preparedness, "Facilitate and broaden communications between government agencies and health-plan providers, policy professionals, CEO's, and communication professionals." We have taken the traditional business-continuity management concepts that drill down into every department at Kaiser and looked at it nationally, but we now integrate it with the new global threats we have to face, because the models prior to 9/11 were IT-centric for local disruption.

The basic model we use is based on a goal of getting back to "normal" as soon as possible after an event. We have a number of executive oversight groups, and we include labor as we are a labor-management partnership. We have established national-and-regional emergency-operation centers, and within each of our over 30 hospitals, there is an emergency-operations center as well. Our planning-and-response process has a common reporting system of communication so that senior-level decisions. Our various workgroups provide input in the planning process, so as new hazards come on the scene, as with anthrax several years back, we can adjust and coordinate our planning process.

Pandemic flu is now our big focus, but all the planning will not prepare anyone for a pandemic of the nature of the 1918 pandemic. An excellent book on that pandemic is John Berry's "The Great Influenza."

- Robert M. Fredianelli, Director, Area I, Operations Maintenance and Construction, PG&E
  http://www.dir.ca.gov/chswc/forumpresentations/Bob%20Fredianelli%20Employer%20and%20Workers%20Preparedness%20(rev%20032706).ppt

PG & E has 70,000 square miles of service territory, 139,000 circuit miles of electric lines, 45,800 miles of natural-gas pipelines, 4.9 million electric customer accounts; 3.9 million gas customer accounts; and 20,300 employees. PG&E established an emergency plan policy following the Loma Prieta earthquake and Oakland Hills fires in 1991. It now holds two exercises per year, after which there is a review and critique. Based on those exercises, there is annual training for employees. There are four distinct levels of emergencies: Level 1 - Local emergency causing local outages; Level 2 - More widespread, moving crews or employees from one location to another; Level 3 – Impacting entire service territory, like a major storm; Level 4 – Natural Disaster,

Earthquake, Terrorist Attack, and the Emergency Operations Center (EOC) takes over control of the emergency. There are two EOCs, one in SF and one in San Ramon.

The plan's intent is: safety of employees, the public and property; assessment of damage and ensuring that resources are available to make repairs; communication to customers, and employees; and restoration of services. From the workers' perspective, we annually train them to stay calm and not panic, rehearsing evacuation routes, stairway exits and points of assembly. We assume that public transportation and travel paths will be blocked for two to three days. We encourage employees to have back-up caregiver plans for their families. We also encourage employees to have an emergency kit at work with a change of clothes and medications. Procedures are to call supervisors to find out whether to report to work after a disaster. An employee message center in Sacramento is for employees to report messages so that family members can check in. We also encourage employees to have a contact out of state where they can report their status.

- Scott Hauge, Founder, Small Business California and President, CAL-Insurance & Associates, Inc.

Small Business California is a non-partisan advocacy group for grassroots small businesses, defined as under 100 employees. In a recent survey of small businesses, the major agenda issues were: health insurance; workers' compensation; education; infrastructure; regulation; and energy. Disaster preparedness is not on the list. When asked if they had a disaster plan, responses from small businesses ranged from acknowledging that it is something that they should do to uninformed responses about what is needed. Small businesses do not have risk managers, very few have human resource managers, and there is limited capital. Therefore, putting together a plan is difficult, even overwhelming. Eighty to ninety percent of small businesses expressed an interest in getting information. A simple outline is needed, as well as assistance in training and coordination between various governments and the community. Access to capital is also an issue in the recovery stage. The Small Business Administration (SBA) response after Katrina was very slow and bureaucratic. We know that they were overwhelmed, so it is not a criticism, but we know that small businesses did not get much money from the SBA.

Q&A:

- What about psychological preparedness? Practices are a good way to prepare; employees get a sense of what they should do, who they should call and where they should be. Mental-health workers were sent to Katrina and they were some of the most overworked. We will not know the effects for some time.

- Are area hospitals in Northern California coordinated for surge capacity? Are communities looking at having triage below the hospitalization level? How much coordination is there? On any given day, go check your local medical center and see what the surge capacity is and you will be surprised to learn that it is zero or maybe just a little bit. There are ethical issues involved. For example, one of the scarce

resources in a pandemic will be ventilators. Who will make the decision about which people will get a ventilator and who will be sacrificed?

- Is there more training that can be done for the communities to increase awareness? It will not endear anyone if we begin public-service announcements about what we could face; people will be turned off by the facts. Our individual and collective psyche has not come to grips with this. At the local health-department level, there is no surge capacity. In order to advance the discussion on this issue, pressure should be put on local health departments, together with employers, schools, and other stakeholders to develop plans for alternate health-care sites. It is a community effort; you can not ask the health-care provider who is already stretched to act alone.

- Are there templates for a housing authority, for example, which is responsible for creating a plan? We do not want our employees taking care of their families instead taking care of the people they are responsible for at work. In the end, it relates to the loyalty people have to the company. After they take care of their families, they should have a strong sense of duty to their employer and those at work.

- Lack of coordination, lack of communication, and lack of education/educational materials seem to be common themes. What are the barriers and where do we go from here? Human nature is a basic barrier. We tend to be optimistic people and we do not like to dwell on worst-case scenarios. The longer-term answer is that the complexity of preparedness today is amazing and people are overwhelmed, including large businesses. It is important to figure out ways to approach this in bite-sized chunks. No one has done that yet; the scope keeps increasing instead of getting more manageable. Political will and business discipline are needed to address the problems.

This is a hot issue today because of the anniversary of the earthquake. Two weeks after this, you will not hear anything about it. Small businesses do not think about it because it is not constantly out there in front of them.

Lunch Keynote: Profile of Risk to California Workers from Catastrophes

- Hemant Shah, President and CEO, Risk Management Solutions

A 1906 earthquake-type disaster today would create $18 billion in insured workers' compensation losses, with several thousand deaths, 30,000 serious casualties, and 80,000 other injuries. Seventy percent of California workforce works in areas subject to high levels of earthquake hazard; the whole workforce works on one fault line or another. Terrorism as a threat is not a random one; rather its intended effect is to motivate followers. Consequently, it tends to be focused on high-profile targets, symbolic targets, and targets of significant recognition to the international community. California has a disproportionate number of high-priority targets, that is, 20% of the national number.

For comparison purposes, the 1918 Spanish Flu pandemic created 50 million deaths worldwide. About 30% of the U.S. population was infected and 2% of all infected people died. There were 700,000 fatalities or 20 times greater than that of the conventional flu.

The historical pandemic frequency is three to four occurrences per century, with the most recent one in 1968. The current avian flu has a much higher fatality rate of 60% for those infected. If this flu becomes pandemic, it would be devastating and unprecedented in scale. Many factors would control the outcomes, such as various levels of response.

Risk Management Solutions (RMS) has modeled various risks for California, using severity and frequency factors. Catastrophic risk uses a probable maximal loss (PML) measurement. Hazard and vulnerability, the demographic exposure risks of workers, tend to vary with the type of hazard. Risk increases as businesses have more shifts beyond the typical 9-to-5 workday. Pandemic avian flu is identified as the greatest risk in terms of potential impact, despite the uncertain threat of the H5N1 virus mutating for human-to-human transmission. While terrorism also poses a great threat with tremendous potential impact, earthquakes posed the most likely threat, according to the modeling. Each type of risk has its own relationship to workers; some types may pose the greatest risk while people are at work, or coming or leaving from work.

There is a 40% chance that a California worker, at least one, will die in the coming 12 months from either an earthquake, terrorism or flu event. For the past two years of data, the mortality rate at the workplace in California is about 0.003%. When the three additional perils are added, the impact on the mortality rate is about six times greater. Therefore, the threat of fatality in the workplace is significantly greater than the other threats that most workers face in the normal course of their job. In all cases, mitigation was seen as the best way to reduce risk by recognizing that California represents a significant economic target and focusing on the most significant economic regions to deter terrorism, avoid tilt-up buildings and other seismically unsound structures, and plan for a pandemic in order to reduce its impact.

Workers Protecting the Workplace: The Health and Safety of Emergency Responders in Natural Disasters and Terrorist Attacks

What California can do to improve health and safety of emergency responders in natural disasters and terrorist attacks?

Background: Tom LaTourrette, Physical Scientist, RAND
Max Kiefer, Assistant Director for Emergency Preparedness, National Institute for Occupational Safety & Health
Mark Ghilarducci, James Lee Witt Associates; Former Deputy Director of the Governor's Office of Emergency Services
Dallas Jones, Secretary Treasurer, California Professional Firefighters

- Tom LaTourrette, Physical Scientist, RAND
  http://www.dir.ca.gov/chswc/forumpresentations/LaTourretteNew.ppt

RAND has looked at the subject of personal protection for emergency responders under the sponsorship of NIOSH with input from the responder community. The study surveyed fire, police and emergency medical-services personnel, responder departments,

technology suppliers, researchers and associations about the hazards of concern, critical protection needs and factors limiting progress in reducing injuries and fatalities.

In 2001, NIOSH opened a new laboratory, a national personal-protective technology laboratory, in an effort to elevate personal-protection research and focus resources on it. In August 2001, RAND teamed with NIOSH to discuss research priorities. Then 9/11 occurred and priorities were reordered. Focus turned to lessons learned during terrorist attacks and precipitated a conference in December of 2001 to include in the discussion the anthrax attacks and the Oklahoma City bombing. In 2002, researchers went out to the community, with terrorism having a new focus.

Firefighters reported that: fire ground protection is the largest concern, even though only 8-9% of the work is fighting fires, because it is by far the most hazardous job firefighters do. Thermal protection is adequate if not excellent, but unintended consequences remain since the gear is heavy and hot, causing stress. Isolation from the environment (helmets, masks, ear plugs, it is noisy, etc.) makes it difficult to accurately assess hazards; communications are also hindered for these same reasons, with continuing need for in-mask microphones and various radio systems that are robust. Personnel accountability and location are a long-standing issue, including where everybody is, what they are doing, and if you can transmit commands and get them out quickly and safely. Of surprise were issues of equipment status and service life, or how to know if equipment is wearing out due to thermal protection, chemical barriers, and moisture barriers over the lifetime of the equipment; a key issue therefore is a need to better monitor service life.

Emergency Medical Services (EMS) reported that: their priorities are assaults and medical protection against infectious diseases. Since personnel are going into people's homes and into crime scenes or domestic-violence situations, more and more personnel, especially in urban areas, are wearing ballistic vests, with specialized training in potentially violent situations. Medical protection is mostly designed for in-hospital use, not first response. Programmatically, multiple-delivery systems hinder any kind of coordination and focus. Emergency medical services can be provided by fire department, a third public-service department, hospitals, or private contractors. So it is difficult to get a picture of the service; even basic fatality and injury data are difficult to obtain, and there is no way to count how many EMS responders there are.

Law-enforcement officers reported that: priorities are assaults and vehicular accidents. They are first on the scene, being frequently referred to as "blue canaries." They have the least information about what is going on, and they have to quickly assess the situation. They have to interface with the public more than other responders, and they have to do a lot with their hands, as they need to be able to run, handle weapons, and drive a car, so the protective gear can not interfere with any of that. Since they do not deploy out of stations but out of a car, the gear has to be with them so it can not be too large and it has to be immediately accessible. Despite great progress in armored garments, there is still need for improvements. Comfort vs. protection is a trade-off, which they would like to see improved. Vehicle injuries are a serious concern with two approaches; vehicle

design, such as speed regulators or other ways to harden vehicles, and unsafe driving need to be addressed more aggressively.

Terrorism response was a major concern for all responders. Personal protective equipment actually works well as designed. However, it is not designed for multi-threat, multi-day, extended response. Firefighting gear is designed for an hour or two. HazMat suits are not designed to worn for climbing around in rubble because they tear and wear out. Air supply for self-contained breathing apparatus only lasts for a maximum of one hour, but more typically only a half-hour. At the time of the anthrax attacks, there were no self-contained breathing apparatus or respirator masks that were approved for chemical, biological, radiological, nuclear materials; nothing could protect from anthrax. That has been subsequently addressed; NIOSH has moved quickly and developed standards and began certifying masks that provide such protection.

Another problem was that the equipment was not always available or maintainable. Fire, police and EMS do not use respirators; the personal protective equipment at the World Trade Center was not normally deployed to any of these responders, so they had to learn how to use the equipment. Maintenance of gear was also a problem. There was limited capacity on-site on 9/11 at the World Trade Center for the Pentagon to refill air bottles or recharge flashlights for an extended period, and cleaning masks with water was difficult.

Different agencies used different gear and had different protocols for using it. Much of the supplemental gear that was supplied to those different agencies could not be shared. Risk assessment was also a problem. Different agencies attempted to analyze the hazards in the environment, but they had different protocols and standards, and they came up with different recommendations and conclusions. Therefore, there was poor communication of the hazards and the protection requirements to the front-line responders.

To summarize, terrorism response is fraught with uncertainty. People did not know what the threat was and what hazards they would face. They did not know what response procedures they were going to use. As a result, they did not know what protection was appropriate. Money became available and people were buying equipment, but they had no idea what they were buying it for. For example, small-town police departments were buying HazMat suits without knowing their purpose or how they worked. That kind of response has slowed down; people are thinking more methodically about the responses to events and the kind of gear needed.

There were also systems-level problems due to interoperable communications equipment. While you do not need interoperable communications equipment very often, since most responders deploy to small incidents, when you do need it, it is critical that it works. While the issue is being worked on, the solution is a long way off. There are myriad stories of fire chiefs having five or more radios to speak to various touch points in the command structure. The solution is expensive and it is evolving slowly as a "whole city" approach involving multiple agencies. Improved hazard-assessment capabilities are also identified as a need, not only in terms of monitoring and measurement devices but also in terms of how to use the information once the hazard level is determined. This is

especially the case for wide-area dispersed hazards, such as the CBRN. There is no protocol or equipment for such wide-area monitoring.

Another systems-level problem involves "human factors": what are you going to do in response to a disaster? That answer dictates who needs what equipment when and who decides what equipment needs to be purchased and allocated. As equipment becomes more numerous in types and complicated in use, it comes with data that also have to be managed. In addition, making the decision to place individuals or crews in situations of higher risk is also more complicated. One example in fire departments is the decision not to enter unoccupied buildings during fire suppression, with the recent trend not to put firefighters at risk.

In conclusion, routine emergencies still pose significant threats to first-responder safety, which are identified but are not solved. Terrorism response adds new and unfamiliar threats that are difficult to characterize. Many findings about protection during terrorism also apply to disasters in general. Continued technical advances are critical, as well as operational procedures and the right amount of education and training.

- Max Kiefer, Assistant Director for Emergency Preparedness, National Institute for Occupational Safety & Health
  http://www.dir.ca.gov/chswc/forumpresentations/Max%20Kiefer.ppt

NIOSH was created by the same Act that created OSHA in 1970, and is now part of Health and Human Services (HHS) and within the Center for Disease Control (CDC). NIOSH conducts epidemiological and medical research and makes recommendations to OSHA and other regulatory agencies. The Emergency Preparedness and Response unit at NIOSH came into being after 9/11 and became known during the anthrax attacks because of its expertise in environmental sampling. It is involved in research, technical assistance, environmental sampling, worker health and safety, human decontamination and reoccupancy activities. Any event that the government responds to would involve NIOSH. NIOSH provides guidance for mortuary teams, such as for a tsunami, as well as sends teams to deal with hemorrhagic fevers, or other international outbreaks. It also assists with the architectural or engineering-control aspects of response, when expedient control measures have to be designed such as for a pandemic flu. It had a role in SARS and anthrax and could have a role in other contagious or infectious diseases. From an exposure-assessment standpoint, NIOSH develops environmental-sampling strategies and works with government groups about data collection and interpretation. Sampling for biological agents is increasing. For example, BioWatch is one proliferating system in the U.S.; another is the Biological Detection System operating in about 280 postal facilities throughout the country to detect anthrax.

The National Response Plan (NRP) establishes a comprehensive all-hazards approach for managing domestic incidents. The NRP Worker Safety and Health Support Annex provide guidelines for implementing worker safety and health-support functions during Incidents of National Significance. The Annex is intended to ensure responders are

properly protected, with a focus on federal contractors and federal workers, and OSHA is responsible for coordination. Katrina was the first time the Annex was activated.

When people are sent into an uncontrolled environment, natural disaster, or terrorist event, only fit and qualified people are selected. Guidelines exist for pre-deployment medical screening of workers that include the documentation of baseline-health parameters, and identification of individuals with health concerns, specific susceptibilities, and those not suitable because of health reasons, as well as identification of medications that may be affected by deployment, immunization needs, and training needs. In addition, when workers leave a disaster environment, assessment should also be made to make sure they are safe.

For further information on Medical Screening Guidance for Workers Deploying to a Disaster Site, go to http://www.cdc.gov/niosh/topics/flood/preexposure.html, or go to Post-exposure, http://www.cdc.gov/niosh/topics/flood/MedScreenWork.html

- Mark Ghilarducci, James Lee Witt Associates; Former Deputy Director of the Governor's Office of Emergency Services

In a disaster, first responders include the corporate side, security guards, and the public-health community. These people need to be considered when developing a safety plan in order to operate under safety standards that are well established and applied effectively across organizations. Well-established management systems are needed to respond to all-hazard events. The systems should be organized and built on all-hazard emergency plans. California has one of the most robust, standardized emergency management systems (SEMS) in the U.S., which manages on a regional and state-wide level the resources and responders moving into a disaster zone and effectively supports them so that they are operating in as safe an environment as possible. At the local level, we use the Incident Command System that includes components of safety and security, a safety plan for each incident, and functional areas of operations, intelligence, logistic support, and administrative and finance support. The National Incident Management System (NIMS) is now being applied across the U.S. so that all responders are operating on the same level in order to reduce injuries, enhance coordination and effectively mitigate emergencies. The key is to approach disaster events in a systematic and strategic way with safety being the priority. Incident Action Planning is the core to responding to an event, including objectives, a safety plan, medical plan and evacuation plan. That information is distributed to all responders on an incident during a designated operational period. At each operational period, there is another planning team that establishes the next plan, and accounts for any new hazards, concerns and safety issues. That is supported through logistics for supplying proper equipment.

For example, during flood response, there have been responders with only life vests and normal clothes, and this exposes them to hazards in the water. They need the right equipment, which includes possibly body suits, dry suits, helmets, appropriate gloves, etc., and the logistics to operate safely. The administrative section of the system ensures

that pre-event contracts are in place, so that resources can be accessed when needed for mitigation and safety. This command structure includes a number of safety officers, including back-up crews or Rapid Intervention Crews (RIC) to support responders who have entered a hazardous area, including specific and applicable personal protective equipment. Lastly, the incident action plan is applied and executed. Implementation of the plan means putting people at risk; the goal is to minimize the risk. Before the incident, you can minimize risk by establishing standards or adopting national standards that exist, and by implementing training, education and exercises. You respond as you train, but unfortunately due to budget cuts, training is the often the first thing that is eliminated or reduced. Training and exercises are critical so that people know how to effectively respond to disaster.

- Dallas Jones, Secretary Treasurer, California Professional Firefighters

The fire service historically was focused on fire only. EMS was only a sidelight, and they only had a First Aid card. Culturally, health and safety faced a problem as it was not considered manly to wear breathing apparatuses, so we did not use them. Employers did not mind, as they did not need to maintain them. The economics of health and safety encouraged doing without these products. In the 1970s, business and labor became aware that ensuring health and safety was not cheap and that injured workers and occupational diseases can be very expensive. With HazMat, specialized teams were implemented; this development was a shock to the fire community because the usual response was "full speed ahead," regardless of the incident. The HazMat approach was opposite, focusing on figuring out what you are dealing with before you charge in. That took some time to be adopted.

California uses an Incident Command System, relies on mutual aid, and has created cooperative agreements between governmental agencies to work together; however, most states in the U.S. do not have all of these features. Nationwide, there is an incident-management system (NIMS) that was implemented about one year ago. It now uses standardized terminology, and protocol responses. The best example was the search-and-rescue efforts at the World Trade Center where thousands of people were exposed to hazards who should not have been exposed. Over the next few years, you will see people coming down with respiratory problems that were unnecessary because people "self-launched" without having a command structure in place.

Responders want to help, but their role has to be controlled. You need a system in place to slow down the response and phase people in. It is called "time and phase plug in" in the military. Another challenge is working over extended periods of time. There has to be a plan for how people will rotate through for longer periods. Public works is not involved in discussions and planning for health and safety operations. In the example of the World Trade Center, location and access to manhole covers to reach water, sewer and electrical controls was a problem. Planning could have made this easier. Logistic support is not done very well in many parts of the country. For example, in Katrina in Louisiana, it was the first time they had set up a base camp for responders to feed and shelter them.

In California, the Forest Service does this every year during fire season. Similar operations would be used during other emergencies and catastrophes.

Business has to have a bigger portion in emergency planning, if only because they have resources that can be tapped immediately and utilized for an effective response. Lastly, exercises and training are critical; practice is what makes fire departments prepared.

Q&A:

- Should government employees be trained in NIMS? Yes, I would recommend it. When there is a large event, you will have to be able to pull people in, so having people trained in NIMS would be very useful.

What Can California Learn from Other Experiences?

Experiences from other jurisdictions and within California with responding to catastrophes, and how lessons are integrated into plans and initiatives.

Bob Snashall, Counselor at Law and Founder, Snashall Associates

David Bonowitz, Structural Engineer, Judicial Council of California, Administrative Office of the Courts

Brian Jackson, Physical Scientist, RAND

Frances Edwards, Director, MPA Program and Associate Professor, San Jose State University; and Associate Director, Collaborative for Disaster Mitigation; Former Director of the City of San Jose Office of Emergency Services

- David Bonowitz, Structural Engineer, Judicial Council of California, Administrative Office of the Courts; Chair, Existing Buildings Committee, Structural Engineers Association of Northern California.

http://www.dir.ca.gov/chswc/forumpresentations/David%20Bonowitz.ppt

Earthquake losses are usually characterized by three types: "deaths, dollars, and downtime." However, there is a long list of other things such as life safety and limiting damage, business continuity, public services, the tax base and community resilience. As mentioned in the morning keynote speech, existing buildings are 97% of the problem. There is no building code for existing buildings. If a building has not had a change of occupancy or a major renovation, the building is permitted and no other seismic safety work is required. There are exceptions for hospitals and some classes of dangerous buildings as classified by legislation. The most vulnerable types of structures are: unreinforced masonry, tilt-ups, unbraced cripple walls, hillside houses, soft-story apartments, non-ductile concrete frames and parking structures with precast concrete. Un-reinforced masonry is most common at small businesses. Pre-1994 tilt-ups and those not retrofitted are quite common. Non-ductile concrete buildings were built before 1976. Non-structural hazards (falling hazards from ceiling, light fixtures or shelves, unsecured hazardous materials, fires) in buildings may be life-threatening, even if the building is up to code or retrofitted. These hazards are often overlooked during construction, as they are not mentioned in the building code; they can also be disruptive to business. Building

codes are designed to save lives, not save buildings or businesses, thus creating a need for business-continuity planning.

Preparedness follows a cycle of response and recovery; once recovery is established, you try to prepare for the next event with mitigation. Response can last about a week, with recovery taking several years. Mitigation will make any disaster event more manageable so mitigation should be the focus during all the years between events. The following resources about mitigation are recommended:

- Seismic Safety Commission: www.seismic.ca.gov
  - *Commercial Property Owner's Guide* (1998)
  - Risk Management Tools
- ABAG: http://quake.abag.ca.gov
  - Preparing your business
  - Liability of businesses
- National Fire Protection Association www.nfpa.org
  http://www.nfpa.org/assets/files/pdf/nfpa1600.pdf
  - Standard on Disaster/Emergency Management and Business Continuity

- Brian Jackson, Physical Scientist, RAND
  http://www.dir.ca.gov/chswc/forumpresentations/Brian%20Jackson%20CHSWC%20Cat%20Prep%20Wkshp.PPT

RAND and NIOSH created a joint publication on emergency responders to address the policy question of how to bring together and employ all the capabilities and resources needed to protect responders during major disasters. The focus was on four major disasters: 9/11 cases, Hurricane Andrew and the Northridge earthquake.

Managing the safety of emergency responders involves three main functions: gathering information on hazards, responders and safety capabilities; analyzing available data and making decisions about safety; and communicating safety information and implement decisions. This is done in an iterative and repeating cycle until the disaster response ends. Disasters are different from "routine" incidents and events. They impose unfamiliar conditions, they are big and they last a long time. The hazards are unusual or intense for any given responder organization and exceed the capability of any individual-response organization. Consequently, disasters "break" the management cycle. The report on emergency responders focuses on two strategies to address such breakdowns. First, establish capabilities to perform safety-management functions under disaster conditions. Second, approach safety management from an integrated perspective by involving multiple organizations and sharing resources.

- Bob Snashall, Counselor at Law and Founder, Snashall Associates, and former Chairman of the NY State Workers' Compensation Board.
  http://www.dir.ca.gov/chswc/forumpresentations/Bob%20Snashall%20California%20Presentation%20April%202006.ppt

National workplaces see about 6,000 workplace deaths per year. California sees about 500 workplace deaths per year. September 11th produced 3,000 workplace deaths or six years of California workplace deaths. The collateral damage is much greater. When New York modeled the potential impact of 9/11, it thought the number of deaths would be much higher because many more people worked in the buildings. The numbers could have been much higher, but for the fact that on that day, it was the first day of school in the city and a number of parents were late in getting to work. It was also the Democratic primary day in the city, and a number of workers went to vote before arriving at work.

Prior to 9/11, the New York State Workers' Compensation Board did not have a plan for a disaster. There was a business-continuity plan that protected technology and operations. The laws did not meet the special considerations associated with a catastrophic event like 9/11. Firstly, there is a privacy issue. There are many laws against information sharing which prevent the sharing of information between agencies and entities. Secondly, volunteers will come, but it is not clear if out-of-state volunteers will be covered by workers' compensation. Third, normal workplace injuries or deaths produce evidence. With 9/11, there were not 3,000 bodies. DNA tests provide evidence only when a body part is recovered. Only when there is evidence, will an insurer pay for a funeral. Strange and unique issues come up or apply under the traditional workers' compensation matrix. For example, there was the unusual situation of asking for a second burial when another body part was found.

In coming up with a response to 9/11, the executive team realized that they could not access the chain of command as it was interrupted. The Governor's Office and others were overwhelmed and consumed with their responsibilities. Even though there is a plan in place, it is important to understand that individual action will have to be taken. Moral obligation becomes part of the decision process. Within a few days of 9/11, defense attorneys for insurance companies had circulated memos to the various insurance companies giving reasons not to pay claims arising from 9/11. For example, "precincts of employment" is a term in workers' compensation which provides coverage once you reach the place of employment. When people claimed a spouse as a victim of 9/11, the defense attorneys asked for proof that the spouse actually went to work that day. The Board had to respond to such a position. A memo from the Board was sent to all the insurance carriers instructing them to meet their professional obligations, but to also do so in a compassionate manner. It also instructed them to pay claims without prejudice, if possible. The AFL-CIO saw a copy of the memo and was surprised by the Republican "compassion." In a catastrophic event, there are no partisan politics. There is also an ethical duty. There are limited resources and the urge is to put all of the resources into meeting the needs of the catastrophic event, yet others not involved in the catastrophic event also need resources, and there is an ethical duty to meet the needs of everyone.

In the weeks or months after an event, there has to be a plan to track the results of the catastrophic work at operational, financial and legal levels. The plan has to be revised every two years to determine whether it still meets the challenges. In addition, the plan has to be communicated to the constituents; it should be shared with the community.

Catastrophic events have been with us throughout history and will most likely take place in urban population centers. Insurance carriers should ask themselves if they have a plan to handle a surge in claims. Employers should ask their insurance carriers if they have a plan to deal with the needs of the families.

- Frances Edwards, Director, MPA Program and Associate Professor, San Jose State University; and Associate Director, Collaborative for Disaster Mitigation; Former Director of the City of San Jose Office of Emergency Services
  http://www.dir.ca.gov/chswc/forumpresentations/Frances%20Edwards.ppt

Preparing ahead of time can make an important difference in the ability of an organization to survive and recover. Hurdles and excuses always come up when individuals interested in emergency management approach those in control of the budget. There is inadequate threat evaluation by most people, as people do not believe that something could happen, and even if they do, they are expecting government to take care of them. The fact is that the government is broke. Proposition 13 has reduced local government so much that even libraries are difficult to keep operational. Cities are not creating mystery stockpiles that will suddenly be produced to help the public. The government is not even stockpiling water for its own first-responder employees. Also, it will take 72 hours for a federal response; logistics, such as moving responders into the area, charting specific locations for them to go, and then deploying them, take that much time. Therefore, individuals and businesses need to be prepared to deal with any problems and to coordinate with the local first responders.

However, there are not enough first responders to deal with large events. In San Jose, for example, the ratio is 1 firefighter for every 5,000 people; there are 4 firefighters per engine and 5 firefighters per truck. Therefore, there is one engine for 20,000 people and one truck for 25,000 people. On any given day, if someone had a heart attack, a paramedic would be on site within three to five minutes at that staffing ratio. After an earthquake, with many people demanding services, it will not be possible to send a truck to everyone. The focus will be on the most critical cases that require professional training.

Internal preparedness within an organization will be a key to success. Many organizations do not understand how rapid an onset will be; it will be immediate. If there is an earthquake, there will be no warning at all. If there is a terrorist attack, there will be little if any warning. There will be no time to wait for outside direction to save lives. A plan will have to be already in place for duck and cover, internal search and rescue, emergency-response team efforts, building clearance, etc.

There is a lack of resources for response within the workplace. Often, the perception by management is that it "will not happen during my tenure." The CEO/CFO/business owner may prefer to protect the bottom line profitability rather than ensure survivability, or companies say that they can not afford lost productivity time for employee training, or that they can not justify investment of scarce resources in training and equipment that

may never be needed. Companies need to find a way to have an adequate stockpile of food, water, medical supplies, and sanitation supplies for a minimum of 72 hours. It is important to assess the workplace and decide whether personal protective equipment is needed in order to respond to workplace demands. Other key questions include: are there hazardous materials, is there a gas-line connection, and is there a possibility of outside interference that increases dangers?

To overcome many of these hurdles, the CEO/CFO needs to view the business-continuity plan as an insurance policy. Business continuity is not just about IT or vital records, but about employees who are the key to response and recovery. Some employees will have to be reminded that they are disaster-service workers in the event of a disaster. For example, the bus drivers in New Orleans did not report to work partly due to this lack of understanding and training. Likewise, the New Orleans police department experienced high absenteeism due to family/personal losses. If employees plan ahead of time and set up contact and communication plans, then a lot of anxiety can be reduced. Other useful preparedness solutions include purchased ad time on radio or TV, alternative HAM radio networks, and an out-of-area 800-telephone number where people can call into to get updates and instructions about what to expect when they return to work.

Family preparedness is an important part of the ability of the workplace to recover. Employee Assistance Programs should be promoted to assist with the psychological impacts that will occur both to the families and workers. Resources on critical-incident stress management for adults and children should also be referenced. Duck-and-cover safety systems and 72-hour preparedness kits for one's car or office space should all be part of ongoing training programs.

Partnerships with employee organizations and unions are also important. These organizations need to understand that partnership benefits employees, rather than that it is a change in working conditions. If these groups are brought in early, there is less likelihood of encountering resistance. Also, a pre-made labor agreement would be helpful which places employees on vacation days in the event of a disaster, rather than the "post-disaster unemployed" policy which pays only one third or less of current income.

Cost/benefit considerations are helpful for developing projects. The creation of an Emergency Response Team (ERT) would serve both day-to-day medical emergencies as well as disasters. Low-cost options include adding extra bottled water or food to the existing systems at work so that a preparedness supply becomes available. There are practical site considerations such as drills, internal security identification and monitoring, and back-up energy supplies. All safety systems, fire alarms, and public address communication systems should be evaluated. All external doors except for main public entrances but including stairway exits at the ground-floor level, should be locked.

There were useful practices in effect at several companies during Katrina. As part of it emergency plan, Hibernia Bank rented apartments to house its employees outside of the affected area, and of the 107 branches that were affected, 47 reopened within a week. Wal-Mart had 123 damaged stores, but 18 reopened within the week and started shipping

recovery supplies to its stores. Northrup-Grumman had alternative methods to deliver paychecks to 3,000 workers who could not get to their normal worksite.

Roles of Agencies in Disaster Preparedness and Response in the Workplace: Current Actions, Recommendations, and Plans for the Future.
The roles of various agencies in improving workplace preparedness, the type of training needed, and how scenarios are developed and simulated to improve decision-making during catastrophic events.

Phyllis Cauley, Chief, Preparedness Branch, Governor's Office of Emergency Services
Vickie Wells, Director of Occupational Safety and Health, San Francisco Department of Public Health
Raymond Neutra, Chief, Environmental Occupational Disease Control Branch, Department of Health Services
Deborah Gold, Senior Industrial Hygienist, Cal/OSHA
Larry Klein, Chairman, California Seismic Safety Commission

- Phyllis Cauley, Chief, Preparedness Branch, Governor's Office of Emergency Services
  http://www.dir.ca.gov/chswc/forumpresentations/Phyllis%20Cauley%20presentation.ppt

While OES is involved in disaster response, there are other important activities as well, such as planning for a resilient workplace. For continuity planning, it is necessary to examine risks, identify essential functions/operations, establish a line of succession, understand the delegation of authority to take action, and determine appropriate alternate work sites. Vital records need to be located and be easily accessible or transportable. Continued communication with employees, customers and stakeholders is important so that everyone knows that the business is still viable. Protection, safety, and the well-being of employees are necessary so they will be able to report to work after a disruption.

OES has a pilot program with the federal government to make Continuity Planning stronger for Emergency Operations Centers (EOC). Planning templates and reference documents are for use by any level of government and will be available on the OES website by the end of May. Training and exercises are necessary for employees to know their role when a disaster strikes. OES has a California Specialized Training Institute in San Luis Obispo and has trained responders for years in a variety of emergency-management arenas and multi-disciplines and jurisdictions.

In conclusion, expect the unexpected. Start to prepare now. Forty percent of businesses fail to re-open following a disaster-related business interruption. It does not have to be so. Plan, train, and exercise in advance.

Recommended Resources

- Ready Business – outlines commonsense measures business owners and managers can take to start getting ready. It also has a sample Business Continuity Plan available. (**www.ready.gov/business/_downloads/ReadyBusinessBrochure.pdf**)
- OES' "Be Smart, Be Responsible, Be Prepared. Be Ready." – Preparedness resources for individuals, communities, and the workplace. (**www.oes.ca.gov**)
- Prepare.Org – provides information relevant to workplace emergencies. (**www.prepare.org**)
- Red Cross and the Workplace (**www.seattleredcross.org/corporate/index.htm**)

Checklists and Office Emergency Kits

- Business Pandemic Influenza Planning Checklist (**www.pandemicflu.gov/plan/businesschecklist.html**)
- Personal Workplace Disaster Supplies Kit (**http://www.redcross.org/static/file_cont118_lang0_964.pdf**)
- Ten-Point Checklist for Emergency Preparedness – focuses on the emergency needs of small businesses and nonprofit organizations (**http://www.planready.com/library/10_point_checklist.pdf**)
- OES Preparedness Tips – How to Secure Your Furniture (**http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/Emergency%20Information%20Current/$file/Furniture.pdf**)

Planning Guides

- FEMA -- Emergency Management Guide for Business and Industry (**www.fema.gov/pdf/library/bizindst.pdf**)
- Red Cross—Preparing Your Business For the Unthinkable (**http://www.redcross.org/services/disaster/beprepared/unthinkable2.pdf**)

- Vickie Wells, Director of Occupational Safety and Health, San Francisco Department of Public Health
  http://www.dir.ca.gov/chswc/forumpresentations/VickieWellsCatPrepPres040706.ppt

Public-health departments are the hidden emergency responders. The primary role of a health department is to provide health care during and after an event. Planning is done to make sure pre-hospitalization and hospitalization are available when needed. The primary responsibilities that go into such planning include coordination of the Emergency Medical Services, Infectious Disease Emergency Response, Environmental Hazard Identification, Assessment & Response, Community Health Services, Response to Chemical, Biological, Radiological, Nuclear & Explosive (CBRNE) Events, and Technical Assistance & Expertise for the City and County of San Francisco.

Specific activities and accomplishments include: developed DPH Emergency Operations Plan; trained DPH Staff on NIMS; established Training & PPE Committees and Hospital Resource Tool & Patient Tracking; provided Community Behavioral Health Services; developed an ER Plan, Infectious Disease Emergency Response Planning, Pharmaceutical Caches, and Disaster Response Equipment Upgrades. Specific to Infectious Disease Planning, the Health Department conducts Epidemiology and

Surveillance, Sentinel Event Enhanced Passive Surveillance, Biological Detection System Plan Monitoring, Isolation and Quarantine, Infection Control, Mass Prophylaxis & Strategic National Stockpile Plans, Laboratory Capabilities for Testing, Public Information Distribution, Pandemic Influenza Planning, and an Avian Flu Task Force.

- Raymond Neutra, Chief, Environmental Occupational Disease Control Branch, Department of Health Services
  http://www.dir.ca.gov/chswc/forumpresentations/Raymond%20Neutra%20-%20Preparedness%20as%20a%20Means%20for%20Survival%20and%20Solidarity3.29.ppt

The State Health Department consults with county health departments that have on-the-ground responsibilities. One department deals with chemical, radiological and contamination issues; its objectives are minimizing mortality and morbidity, minimizing post-traumatic stress syndrome, minimizing conflict among stakeholders with different interests and ideologies in crisis and recovery phases, and maximizing group solidarity between, during and after disasters. Emerging challenges for the department are helping management and labor in vulnerable workplaces prepare for the challenges of the recovery phase. There is a degree of uncertain science in some disasters, and recovery-phase stakeholder negotiations will become inevitable because of issues such as "how clean is clean" (e.g. anthrax in the Senate vs. Post Office standards), who decides when an environment is clean enough to continue operations, and what process will be used to make such a determination. Past experience has informed the process, such as at Love Canal, Med Fly Spraying, and Anthrax in SFO Airport.

Preparation as a group at the community or ward levels could be useful. Sustainable dual-use preparedness structures may make help with the adoption of planning modes. Since disasters are rare, preparedness has opportunity costs, so dual use efforts may provide an added benefit. The challenge is to make preparedness activities and organizations sustainable and supportive of non-disaster functionality.

- Deborah Gold, Senior Industrial Hygienist, Cal/OSHA
  http://www.dir.ca.gov/chswc/forumpresentations/Deborah%20Gold%20emergency%20response%20presentation%202006.ppt

OSHA has a role under the National Response Plan (NRP), and Cal/OSHA as its surrogate has a part of that role including the areas of HazMat, public works and engineering, and urban search and rescue. OSHA implements the worker safety and health support annex by actions that include: ensuring availability of safety and health resources; providing technical advice and support; helping develop site safety and health plans; identifying and assessing health and safety hazards, and providing exposure monitoring; medical surveillance and monitoring with the Department of Health and Human Services (HHS); running of a personal protective equipment program and respirator program including fit testing, collecting and managing injury data;

communicating with unions, contractors, and others on safety and health issues; coordinating and providing incident-specific training; and collaborating with HHS to identify appropriate immunization and prophylaxis for workers. These roles are during a response phase when there is an incident command structure in place. During recovery, Cal/OSHA transitions back to a normal compliance, enforcement, and consultation mode.

Cal/OSHA has jurisdiction over public and private-sector emergency responders. The Hazardous Waste Operations and Emergency Response Standard ("Hazwoper" standard) specifically addresses emergency response. This is because many emergency-response organizations have significant problems with basic safety issues such as respiratory protection and decontamination. Cal/OSHA participates in training exercises, workshops, etc., to improve the ability to coordinate with other agencies and to assist agencies in improving health-and-safety components. Cal/OSHA will provide technical safety-and-health assistance and advisories, and it will integrate into established incident commands at the field level technical specialists in planning/intelligence. It will assist safety officers and help with the H&S plan; it may provide health-and-safety monitors and advise on issues such as excavations, scaffolding, and chemical exposures.

Cal/OSHA has about 250 health-and-safety experts in 22 district offices and 5 area offices throughout the state. It has Northern and Southern California emergency-response teams, with monitoring and other equipment based at the district-office level. Additional resources are available through Federal OSHA. Cal/OSHA is probably the state agency that can get closest to the scene with additional resources beyond what the local responders have. In the disaster-recovery phase, the responsibilities concern work-site characteristics: life-safety mission completion clean-up or clearance activity, private contractor oversight, largely public works operation.

Avian flu is a different kind of emergency: it is not as localized and it may be widespread or remain an occupational issue. It poses a planning dilemma given the uncertainty and the concern about not wasting resources while knowing that you cannot afford to be unprepared. It is currently an occupational risk and whether it becomes a pandemic is still to be determined. Even if it does not become a pandemic but highly pathogenic avian influenza comes to California, it will be an occupational risk to health-care workers and people who deal with diseased birds. Currently, the world is in Phase III of the pandemic flu. A strain has emerged in animals and there has been limited transmission to humans; so far, there has been no human-to-human transmission. Phase IV is limited human-to-human transmission. Phase V is more transmissible. Phase VI is the true pandemic. With SARS, it never got to Phase VI. Phase III, IV, V are an occupational-disease issue for health-care workers who are treating avian flu. There will be a need to limit co-infection that could lead to mutations that could make avian flu transmissible, and there will be a need to limit the more virulent pathogenic genes that could create a stronger human flu. Since health workers are on the front line of defense, it is critical that they remain healthy and effective. Other affected workers are people dealing with dead birds, such as Fish and Game or the Parks and Recreation workers. More attention will need to be paid to workers exposed to flocks infected with avian flu. As part of internal preplanning, the Department is trying to maximize the number of Cal/OSHA

respirator users and develop procedures for inspections/consultations regarding eradication, health care, etc. It is working to increase the ability to provide technical support in affected operations, for example by helping with respirator training, fit-testing etc. Cal/OSHA and DIR are working on Continuation of Government Operations (COGO) planning. Cal/OSHA has input into the draft pandemic flu plan, as it applies to protecting workers, particularly in health care.

Cal/OSHA is currently meeting with the California Department of Health Services (DHS) and the California Department of Food and Agriculture (CDFA), and hopes to meet with other agencies, private employers, and unions on worker-protection issues. It is consulting with respirator suppliers and other critical supply points. An Aerosol Transmissible Disease standard has been under development for the past two years and should go into rulemaking later this year. If workers are not adequately protected, or do not feel they are, they will have to choose between doing their jobs and attending to their health/families. This would increase the negative impact of avian flu. There must be a consistent, credible message coming from public agencies, employers, and unions or the system breaks down. It is possible to start at a high level of protection and then adjust accordingly to maintain credibility. However, if the message is pitched too low with surgical masks instead of respirators and healthcare workers get sick, then the department will not be believed in future advisories.

- Larry Klein, Chairman, California Seismic Safety Commission
  http://www.dir.ca.gov/chswc/forumpresentations/Larry%20Klein%20testimony.ppt

The California Seismic Safety Commission recognizes the comments by David Bonowitz as stating clearly the problems in California. The Commission is an independent advisory body with 15 diverse members consisting of engineers, scientists, first responders, social scientists, utilities, politicians, insurance representatives. Its mission is expressed in the California Earthquake Loss Reduction Plan. Recent Commission products include: the "Homeowners' Guide to Earthquake Safety" (2005 edition), which is given to anyone who has bought a house in the last decade or two; and the "Commercial Property Owners' Guide to Earthquake Safety," which is for light-industrial businesses. The Commission has also looked at tsunami risk in California. The Legislature directed the Commission to review the seismic implications of the SF Public Utility Commission's Water System seismic upgrade program, a product which is being finalized. The state government asked for a report on using non-traditional buildings for school with reference to the safety considerations built under the Field Act, which is the gold standard for school-building construction.

California has spent billions of dollars on mitigation already for PG&E, PUC, state and local government buildings, CalTrans, BART and brick buildings. This has been done mostly with private money for the private sector. The State can only pass regulations and "encourage" mitigation, since unfunded mandates prevent "requirements." Some additional work includes creating a new law that requires shrink wrap on all storage racks taller than 12 feet, involvement in the Unreinforced Masonry Law, and an incentive for

posting of unreinforced masonry buildings. The California Earthquake Loss Reduction Plan includes 147 initiatives that reduce damage and/or speed recovery, reduce a business's loss of post-event market share, and protects workers. This is available at http://www.seismic.ca.gov/pub/SSC02-02.pdf

In Los Angeles, the Business and Industry Council for Emergency Planning and Preparedness (BICEPP) is a non-profit self-help corporation that provides a network for information exchange to enhance emergency preparedness and contingency planning within the business community. Members include Nestle Corporation, Amgen, Southern California Edison, Universal Studios, Paramount, Toyota, City of Los Angeles, City of Burbank, and many others. This is a public/private partnership that should be emulated throughout the state. Their website is http://www.bicepp.org/INDEX.asp

Most governmental programs require a community match for funds. Many communities and private businesses have spent a lot of money on mitigation, but they will not get credit for it. The Commission recommends establishing a Mitigation Bank where previously spent money can be credited for FEMA money. The Commission also thinks that there should be tax incentives for businesses and homeowners for mitigation work.

Recommendations for the Future
The role of partnerships in protecting the workplace and synthesize the information from the day.

- Angie Wei, Chair, Commission on Health and Safety and Workers' Compensation

We have learned today that the Office of Emergency Services is the lead agency in emergency management, but it relies on delegating responsibility to local agencies, contractors, and members of the public, including businesses. Many coordinated networks of trained people, as well as standardized systems for response, should minimize the worst aspects of a catastrophic event. While natural disasters and man-made events pose different threats, they require similar responses and similarly well-trained responders.

We heard several recurring themes in the forum which include: we need more training and more exercises, more coordination, and more communication; we need to understand that mitigation and preparation are voluntary to a large extent, and while incentives may help, there has to be a new proactiveness or new public value in preparedness to change behaviors; and the safety of emergency responders is imperative.

Panelists encouraged working with employees, having labor and management work together, and working with unions for training and skills-building. Employees feel that you are making an investment in them as workers and as community members when resources are made available and training is provided. Employees are the most significant resource in a business and the key to success at the workplace. Therefore, ensuring employee's health and safety through effective disaster response is critical.

Determining potential roles for employees in different disaster scenarios and educating employees are some of the ways that can help an organization to prepare for catastrophes.

It is essential that we begin as soon as possible to have catastrophe plans in the workplace if we do not have them already, provide effective training to employees, and have ongoing communication about best practices in workplace preparedness and response.

- Robert T. Reville, Director, Institute for Civil Justice, RAND

Risk of mass disaster may be six times greater for fatalities at work than we are accustomed to looking at with risk. Granted, a disaster may happen only once every 25 or 30 years, but it can be on a large-enough scale that the risk factor is 6x normal risk. That fact crystallized the importance of a continued focused on disaster preparedness for the occupational safety-and-health community. The state of preparedness by government agencies is ongoing and excellent, and the role of the occupational safety-and-health community, whether NIOSH, or Cal/OSHA or CHSWC, is to provide the best way to facilitate government/employer communication on mass-disaster issues.

Emergency-responder safety issues are extremely important, and significant research and work have been dedicated to the subject. We need to consider a very large number of people as responders, not just police and fire, but also health-care workers, bus drivers, construction workers, truckers, private-security guards, hotel employees, and eradication workers, all of whom play a critical role in keeping workers safe, keeping businesses functioning and keeping the community at large safe and healthy.

Finally, small business is a particular concern. A significant fraction of the California workforce, especially those in small businesses, does not rank disaster preparedness anywhere near the top of its agenda and does not have the resources to do so. An ongoing effort to raise awareness of disaster preparedness among small businesses should be considered.