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## Simple comparisons

<table>
<thead>
<tr>
<th></th>
<th>France</th>
<th>California</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (2017~)</td>
<td>64,925,577</td>
<td>39,523,513</td>
</tr>
<tr>
<td>Land Area</td>
<td>547,571 Km²</td>
<td>403,931 Km²</td>
</tr>
<tr>
<td>Percent Urban</td>
<td>80.8 %</td>
<td>95%</td>
</tr>
<tr>
<td>Median Age</td>
<td>41.3 years.</td>
<td>33.3 years</td>
</tr>
<tr>
<td>Number of Wineries</td>
<td>27,000</td>
<td>4,850</td>
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</tbody>
</table>
California Has Many Levels and Units of Government. Complexity or Opportunity?

• MANY ELECTED STAKEHOLDERS -
  • 1 Governor elected for 4 years (2 consecutive term limit)
  • A bi-cameral legislature – Assembly (80), Senate (40)
  • 58 counties (agents of the state for fiscal, legal and health services)
  • 479 incorporated municipalities (city/local governments)
  • 2,100 special purpose districts (most single function, levee, water, sewer, etc.)

• Policy developed through
  • Legislative acts (laws by elected representatives)
  • Executive Orders of the Governor – directs agency work
  • Voters Initiative (popular ballot process) – people’s direct voice
There are many ways to pay for urban services in California

- Income tax (state only – level personal and business)
- General Property tax (county shared)
- Sales tax (state shared with local governments)
- Transit Occupancy tax (local hotel tax)
- Special assessment tax (specified local areas pay for service)
- Bonds (state, county, city: generally for infrastructure projects)
CALIFORNIA
MULTI-HAZARD MITIGATION PLAN

Edmund G. Brown, Jr.
Governor

Mark S. Ghilarducci
Director
California Governor's Office of Emergency Services

2013
WHAT IS A MULTI-HAZARD MITIGATION PLAN?

• A method for organizing natural and man made risk information that can be shared with many stakeholders?

• A requirement to obtain national (federal) funds in time of large disaster events?

• A procedure to establish goals and objectives that multiple stakeholder can contribute?

• One among many state level plans addressing & assessing risk?

• A parametric insurance policy used by the Federal government?
Practical Financial Motivations for Making the Plan

- Obtain *STANDARD PLAN* approval from the Federal Emergency Management Agency (FEMA). This is a parametric trigger for special funding.

- Obtain *ENHANCED PLAN* (management capacity for use of Federal funds) approval from the Federal Emergency Management Agency (FEMA). This is a parametric trigger for additional funds.
Practical INTERNAL administrative motivations for making the Plan

• Align the SINGLE PLANS of other state agencies with a set of commonly understand multi-hazard goals and objectives

• To utilize mitigation as part of a deeper commitment to climate change and adaptation.

• Provide useful tools to local governments to prepare their own local hazard plans and thus qualify for Federal funds
Federal Law and Policy Directives that promote mitigation and risk reduction

• **Disaster Mitigation Act of 2000.** Continues Stafford Act requirement for a State mitigation plan as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities requirements for two different levels of state plans.

• **Presidential Policy Directive 8** preparation for the threats that pose the greatest security risk including acts of terrorism, cyber attacks, and catastrophic natural disasters.

• **Presidential Policy Directive 21** policy on critical infrastructure security and resilience. A shared responsibility among the Federal, state, local, tribal, and territorial (SLTT) entities, and public and private owners and operators of critical infrastructure
The US Federal Financial Incentives to the States and the Municipalities

• 20% more disaster recovery assistance with a State Mitigation Plan
• 12% more disaster recovery assistance with an Enhance State Plan
• Access to Federal annual mitigation programs: base funding and added funding for population of the state
  • Hazard Mitigation Grant Program (HMGP)
  • Flood Mitigation Assistance (FMA)
  • Pre-Disaster Mitigation (PMD)
• Local government needs a Local Hazard Mitigation Plan
Federal Emergency Management Agency (FEMA) State Plan interest areas

• Plans and Regulations: improve codes and state planning regulations

• Structure and Infrastructure: modify existing better new structures

• Natural Systems Protection: minimize losses and preserve systems

• Education and Awareness: long term multi-sector stakeholder interest
FEMA Guiding Principles for State plans:

• 1. Foster Cooperative Relationships.
• 2. Emphasis on the Planning Processes.
• 3. Focus on Reducing Risks.
• 4. Improve Mitigation Capabilities
CA: Uses a multi-hazard approach

- Major Hazard Group: seismic, flood, wildfire. These are based on causing large loss of life or property.

- Minor Hazard Group: Cyber, Drought, Man Made, Marine, Pandemic, Pests and Insects, etc.

- Tool to integrate Climate Change and Adaptation into a broad set of multi-sectorial actions at stake, local, and special interest levels.
These regions are near major, active faults and will on average experience stronger earthquake shaking more frequently. This intense shaking can damage even strong, modern buildings.

These regions are distant from known, active faults and will experience lower levels of shaking less frequently. In most earthquakes, only weaker, masonry buildings would be damaged. However, very infrequent earthquakes could still cause strong shaking here.

1.0 second spectral acceleration with 2% probability of exceedance in 50 years

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Flood Hazard in California

FEMA Flood Zones

- 100 Year
- 500 Year
- No DFIRM data as of Feb 2017

Does not include FEMA flood information for all areas of California. Some areas await adoption.

Dept. of Water Resources/US Army Corps of Engineers Flood Zones

- 100-year
- 200-year
- 500-year
Important CA State Agencies

- Water Resources Department: supply and control
- Transportation Department (CALTRANS) Freeways
- Fire and Forestry (ICALFIRE) Wildfires
- Energy Commission (Electric, Gas, Renewals, Climate)
- Coastal Commission (control of coaster development)
- Seismic Safety Commission (SSC)
- Governors Office of Planning & Research (OPR)
- Governors Office of Emergency Services (CALOES)
- Natural Resources Agency (CALNRA)
- California Earthquake Authority (CEA) Seismic Insurance
Important non-state stakeholders

- California Private Utilities Council
- California League of Cities
- The Red Cross
- Central Valley Regional Water Plan group
- Private Consultation companies
Floods – State Water Plan

- Over 7 million Californians live in a floodplain.
- State’s capital, Sacramento, has one of the lowest levels of flood protection of any major city in the nation.
- Climate change will only exacerbate this problem.
- Climatologists predict that more precipitation will fall as rain rather than snow, snowmelt will occur earlier, and there will be more extreme weather events.

- This action plan will serve to coordinate and streamline flood control efforts and result in multi-benefit flood and storm water projects, helping to mitigate the significant investments needed to improve flood protection for existing communities and infrastructure.
Distributed Stakeholder Tools: web based, and open

- **Cal-Adapt**: Cal-Adapt is a web-based climate adaptation planning tool. Supported by the SAFEGUARDING CALIFORNIA strategy plan.


- **California Local Energy Assurance Planning Tool**: (CaLEAP) assists local governments in preparing plans to ensure that key assets are resilient to disaster events that impact energy.
CALIFORNIA 2070-2090 Low Emissions Temperature Scenario: Cal Adapt web tool 2.3-4.2F rise
MyPlan, open access web data
More distributed tools

- **CalEMA's MyPlan**: make hazard maps for preparing, upgrading and reviewing Local Hazard Mitigation Plans (LHMPs), General Plan Safety Elements, Local Coastal Plans (LCPs), and hazard mitigation projects.

- **CalEMA's MyHazards**: Use this website to discover the hazards that exist in your area and learn how to reduce YOUR risk! Remember, the best way to recover from disasters is by reducing the risks before a disaster strikes.
Regulation: The CA General Plan

- General Plan: The seven (7) elements required for every city and county – updated every five years

  - 1. Land Use
  - 2. Circulation and Complete Streets
  - 3. Housing
  - 4. Conservation
  - 5. Noise
  - 6. Open Space
  - 7. SAFETY
Safety Element: What it does

• This element Should reduce the potential risk of death, injuries, property damage, and economic and social dislocation resulting from fires, floods, earthquakes, landslides, and other hazards.

• Safety element MUST IDENTIFY hazards and hazard mitigation provisions to guide local decisions related to land use planning.
Integration as plan making tool

1. Establish a broad based team of participants from state agencies and private sector (utility and special interest groups.
2. Invite participation for the goals and objectives process. This creates by-in and information sharing
3. Assign agencies (departments) responsibility for conducting hazard risk profiles (flood, seismic, etc.) and event probabilities.
4. Integrate this information through a professional working group for the plan sections.
5. Collect information on the Local Hazard Plan content.
Population Distribution and Density

People per Square Kilometer
- 1,000 - 36,867
- 75 - 1,000
- 0 - 74

Estimated Population as of March 2017
39,354,432

Source: CA Dept. of Finance, P-1 Total Estimated and Projected Population for California and Counties: July 1, 2010 to July 1, 2050 in 1-year increments; ORNL LandScan 2015™ /UT-Battelle, LLC.
State-Owned Buildings and Flood Hazard

FEMA Flood Zones
- 100-Year
- Dept. of Water Resources/US Army Corps of Engineers Flood Zones
  - 100-year
  - 200-year

State-owned Buildings at Risk

Cal Poly - San Luis Obispo
City and Regional Planning
May 2017

Source: Calif Dept. of Water Resources; FEMA; Cal Poly - San Luis Obispo; City and Regional Planning
Main Goals Of Plan

• 1. Reducing loss of life and injuries

• 2. Minimizing Damage and Service Interruptions

• 3. Protecting the Environment

• 4. Promote community resilience through integration of hazard mitigation with public policy and standard business practices.
Towards Integration of Stakeholders

Operating state agencies, such as CAL FIRE now required to review new land use plans in rural areas to approve the have addressed wild fire risks in terms of road systems and defensible space.

CA WATER plan how addresses Climate Change and Adaptation.

Office of Planning and Research leads the integration of vulnerable community interests

Office of Emergency Services organizes the Cyber threats campaign with the Department of Technology, the Military Dept.
Grid cell size approximately one square kilometer. Cells with population < 75 are not mapped.
"It’s time for **courage**, it's time for **creativity** and it's time for **boldness** to tackle climate change . . . The risk is real, the cost is huge and growing, and therefore taking a sequence of **realistic steps** just makes sense, and that's what we're going to do in **California**.”

–California Governor Edmund G. Brown Jr.

SAFEGUARDING CALIFORNIA 2017
Basic Premise Presented

• STATE HAZARD MITIGATION PLANS AS PRACTICED IN THE US ARE A TYPE OF PARAMETRIC INSURANCE.

• The parameters of the insurance instrument are adjusted:
  • By action of the Federal Government
  • By the type of disaster event
  • By the action of the State Government in promoting mitigation