

# **A Case Study of the Re-establishment of a Utah Seismic Safety Commission**

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## **STATE INITIATIVE CASE STUDIES**

The following case study is one of an expected twelve developed as part of an investigation into the reassessment of state roles in disaster mitigation and management; the project was funded under the National Science Foundation grant #CMS-9629871. The intent of the study is to use case studies to understand why states have taken the initiative to develop in-state programs, to determine how other states can be encouraged to follow suit, and to determine an appropriate role of the federal government to support state initiatives. When the case studies are completed, a theoretical model of the initiation process presented in the research proposal will be tested.

### **TOPIC: RE-ESTABLISHING A UTAH SEISMIC SAFETY COMMISSION**

In 1994, the Utah legislature enacted House Bill (H.B.) 358, establishing the Utah Seismic Safety Commission (USSC). This was the second time that the state through legislative action had created a seismic safety advisory board to develop a plan of action for the state to identify and reduce its risk from earthquakes. Before, in 1977, the legislature created the Utah Seismic Safety Advisory Council (USSAC), which was allowed to terminate when its sunset date was reached four years later. More recently, in 1991, the state through executive action created the Utah Earthquake Advisory Board, the direct precursor to the USSC.

This case study concentrates on the passage of H.B. 358 and why the legislature waited 13 years to re-establish a seismic safety commission. It highlights peculiarities in Utah legislative and executive politics that are acutely concerned with power relationships and the protection of spheres of interest.

### **Approach**

The analysis of House Bill 358 begins with a description of Utah's political landscape to place the case study in context. It includes a discussion of those characteristics that have influenced legislative action, including the relationship between the executive and legislative branches of government and the use of commissions in the state. This analysis is followed by a brief history of seismic safety activity in Utah and what led up to the creation of the Utah Seismic Safety Advisory Council. Then an account of the events that transpired between the sunset of the USSAC and the enactment of H.B. 354 is presented. After the preceding background has been laid out, the specific actions leading to the enactment of H.B.

354 are described. Finally, in a postscript, the actions of the new Utah Seismic Safety Commission since its inception are summarized.

## THE POLITICAL ENVIRONMENT

### Legacies from Territorial Days and the Influence of the Mormon Church

When Utah became a United States territory in 1851, it was at the behest of members of the Church of Jesus Christ of Latter-Day Saints (hereafter referred to as the Mormon or LDS Church) who settled near the great Salt Lake less than four years earlier. In its brief history, the LDS Church had survived conflicts with its persecutors and an exodus to its promised land, which had taken members from New York to Ohio to Missouri to Illinois and finally to Utah. Historians believe that the Mormon's success was partially due to its charismatic founder and prophet, Joseph Smith, its second president and prophet, Brigham Young, and the tight-knit hierarchical organization established by these two men that held the congregation together and permitted the attainment of communal goals.

Although composed of traditional executive, legislative, and judicial branches, the first territorial government incorporated organizational principles of the Mormon church. To fully understand the importance of this link, it is necessary to understand the means by which the Mormon church has been governed. There is no distinct class of clergy in the LDS church; lay members make up the ministry, integrating family and church duties; and lay members commonly rotate church duties, thereby taking advantage of the members' skills, increasing participation in church decision-making activities, and strengthening the inner fabric of the church. The LDS church is led by a single president and prophet but aided by a hierarchy of many layers of subordinate leaders and councils who both provide counsel and implement church policies. At the top of the hierarchy are the First Presidency, consisting of the president and two other members, a Quorum of Twelve Apostles, and several High Councils (Hill, 1978).

According to Hill (1978), in describing how decisions were made in the church, leaders utilized what he termed *theodemocratic* procedures. As a theocracy, the prophet, "acting in God's name, made decisions touching every aspect in life" (Hill, 1978, p. 99). As a democracy, "a sustaining vote of all priesthood leaders was a prerequisite for establishing doctrine and policy" (Hill, 1978, p. 99).

Initially, the territorial government and the Mormon church were intertwined. Brigham Young, who was appointed by President Millard Fillmore as the territory's first governor, was also the church's president and prophet. According to Linford (1949) and Campbell (1978), the organizational principles established to manage the church were adapted to the state government, where the legislature, largely made up of church leaders, served as a council to the governor, and through its votes, ratified territorial policy to be compatible with church policy. As part of the cultural norm, state and church policies were coordinated for what Elazar (1984) calls "moralistic" purposes, where "individualism is tempered by a general commitment to utilizing communal – preferably nongovernmental, but governmental if necessary - power to intervene into the sphere of private activities when it is considered necessary to do so for the public good or the well-being of the community" (p.117). By sharing power with the church, territorial state government established several important precedents:

- the governor assumed primacy over the legislature as a policy maker;
- private enterprise was promoted over state-owned services; and
- state government was last to act, deferring action until it was absolutely needed to strengthen and support the policies of the church, to improve the welfare of the populace, and to accomplish what private enterprise could not (Arrington, 1958).

Among its early policies, the Mormon church wished to establish self-sufficient communities as it colonized the Utah territory. To this end, it provided financial assistance and manpower for private ventures to establish critical industries. In times of financial crisis, the church might take control of a private company to prevent bankruptcy and the loss of services or products; however, the position of the church has consistently been to encourage private enterprise. Therefore, the church and, by extension the state, have encouraged the creation of a free market economy and limited regulations that might negatively affect their well-being (Arrington, 1958).

Almost from the first days after the Mormons settled in Utah, however, the church and then the territorial government did take control over one vital resource, water. When the settlers needed water for irrigation, water from the Salt Lake City Creek was parceled out according to policies established by the church. Over time, first the church and then various government water commissions have controlled the allocation of water within the state.

When the state's first and only constitution was ratified by voters in 1895, following several drafts that were not accepted by the federal government, those who crafted it stated in their "address to the people of Utah" that the executive article "places all necessary authority in the hands of the executive," and that the legislative article "while permitting future lawmakers to perform any needed thing, circumscribes their power in a way to prevent either extravagance or the misuse of legislative authority" (quoted in Thorpe, 1909, p. 3701). The intent of the constitution was to limit the power of the state over its citizens and to place restrictions on the legislature to exercise its ability to regulate their behavior.

### **The Modern Legislature**

While it has been argued that the church no longer controls state government nor sanctions political careers among its leaders, that there exists a separation between church and state as required by the state constitution, the church still casts an ominous shadow over who serves in the government and, therefore, influences the quality of state government (Peterson, 1978; Hrebenar et al., 1987). There are two seemingly contradictory yet related reasons for this. On the one hand, the Mormon church, from its First Presidency to its wards, selects lay officials from its membership according to their spiritual, social, and managerial abilities, thus denying the state natural leaders who might have chosen political careers in the absence of church duties (Peterson, 1978). Because Utah's population contains approximately 70% Mormons, the lay ministers have a great deal of influence over voters and their political choices. On the other hand, those who have previously served the church are commonly elected to the state legislature. Hrebenar et al. (1987) estimated that "90 percent of the members of the state legislature have held high leadership positions in the Mormon church" (p. 115).

In a comparison of the 50 states, citing the moralistic and antigovernment beliefs held by its citizens, Hrebenar and his colleagues (1987) characterized Utah as the most conservative state in the nation, and the state legislature "probably also the most conservative" (p. 113). Since Utah became a state, it has lacked a full-time professional state legislature with sufficient staff to conduct long-range plans or studies and generate programs for the well-being of its citizens (Citizens Conference on State Legislatures, 1971). The so-called *citizen* legislature is manned by low paid part-timers, none of whom has a paid legislative aide.

Until 1947, legislators conducted business in biennial 60-day sessions, thereby leaving policy setting and the management of the state to the governor and the administrative agencies. Since 1947, however, the legislature has slowly begun to assert itself by increasing its capacity to function and by becoming more involved in the policy-making process. The key first step was the creation of the Legislative Council (predecessor to the current Office of Legislative Research and General Counsel), which provided a limited number of paid professional staff to the standing committees and helped draft

legislation that legislators wished to sponsor. The next steps took place in the late 1960s and early 1970s under the governorship of Democrat Calvin Rampton. During the 1965-1966 legislative session, one of the few in which Democrats controlled both houses of the legislature and the governorship, the legislature adopted the use of joint interim committees, composed of both senators and house members, to study important issues and possibly develop legislation to be introduced in the next or following sessions. These committees meet approximately one day a month between sessions and are staffed by the same group who staff the legislative committees. A good deal of the legislature's work takes place in the interim committees. For complex and controversial matters, consideration and a subsequent recommendation by an interim committee increases the probability of eventual enactment.

Voters in the 1966 election overwhelmingly returned conservative Republicans to both the house and senate, but they continued the change process, most often to enhance their power at the expense of a popular Democrat governor, the only person to hold the state's highest elective office for three terms. The new Republican-controlled legislature passed a constitutional amendment to create a 20-day budget session in even-numbered years, which was ratified by voters in the 1968 election. It also reorganized the state's administrative agencies into a series of functional departments based on recommendations of a Little Hoover Commission established by the previous Democrat-controlled legislature, and curbed the power of the governor when it decided that some members of state commissions, councils, and boards could and should be appointed by the legislature rather than exclusively by the governor. Prior to the reorganization, state agencies had been overseen by councils and boards, with all members selected by the governor with senate consent.

Wholesale legislative change, however, was not forthcoming. At a time when many states professionalized their legislatures and extended their sessions to balance the power of state governors and to upgrade and modernize state programs, Utah made some dramatic changes but was still one of a few states left basically untouched by this movement to revolutionize state legislatures. The state legislature chose instead to modify gradually existing processes and procedures at an evolutionary pace following extended deliberations.

While many states employed constitutional conventions and other means to restructure state government, the Utah legislature decided to take a slower, more deliberate approach. It proposed the establishment of a constitutional revision study commission to review limited portions of the constitution annually and then to submit recommendations to the legislature, which, in turn, would debate and vote on the recommended constitutional changes, which, if approved by two-thirds of the legislature, would be submitted to the voters for their approval. In 1971, the voters ratified this approach when they approved that amendments to the constitution could be submitted to the voters after two-thirds of the legislature voted in favor of an amendment. The legislature, by statute, created the constitutional revision study commission, a body that still meets on a regular basis typically to evaluate sections of the constitution in response to resolutions passed by the legislature and then to develop proposals for change for subsequent legislative consideration.

In 1971, the Citizens Conference on State Legislatures (1971) praised the Utah legislature for its ability to function under adverse conditions and noted several conditions that it recommended be changed. Among those conditions cited as negatively affecting legislative proficiency were low pay, short sessions, lack of bill carry-over, lack of staff, and rotating leadership in which the speaker of the house and the senate president were limited to a single two-year term by custom. Basically these conditions remain, even though voters approved annual 45-day sessions in 1984 and the senate first and the house more recently have permitted succession of their president and speaker respectively. However, the unheeded recommendations of the Citizens Conference to make the legislature more functional and independent have not been forgotten. Whether the state should implement them is still being debated (Legislative Process Committee, Minutes, August 17, 1997).

Despite improvements in the handling of bills and the use of interim committees, the committee system still has some inherent faults (Maxwell, 1970). First, at the end of each two-year legislative session, committee membership and chairmanship expires. In the next session, committee chairs are typically decided by political caucuses headed by the speaker of the house, the senate president, and the majority leaders of both houses. Recently there has been a trend for re-elected members to remain on committees so seniority and expertise may accumulate, but committee rotation is still practiced. Second, every two years, following the adjournment of each legislature, the interim committees are often manned by lame ducks. If there is sufficient change in the membership of the next legislature resulting from voluntary resignations or election results, historically common in Utah, the new legislature may not pay attention to any existing interim committee recommendations. Third, even though the rules of the house and the senate suggest that every bill favorably reported out of standing committees will be heard on the floor of the two bodies, the short sessions prohibit many from advancing. The power of determining what bills get moved for further consideration is in the hands of the Rules Committees, otherwise called "sifting" committees, who decide which bills the legislature considers.

As a consequence of these legislative conditions, which tend to impede change, it has been suggested that a bill will not get far in the legislature unless a member becomes a strong advocate for its passage and will aggressively manage its progress through the legislative process. State Senator W. Hughes Brockbank (1970) stated it succinctly almost 30 years ago when he said, "Until someone gets excited about a bill, nothing will be done" (p. 145).

### **Boards and Commissions**

As mentioned above, before 1967, boards and commissions were commonly used to manage state administrative agencies. Since then, they have continued to be widely used as extensions of administrative agencies to set policies, to advise department and division leaders (most often appointed by the governor), and to continue such traditional activities as overseeing licensing, and nominating candidates for state judicial and other offices. According to records kept in the governor's office, approximately 400 boards and commissions exist in the state, the majority created by the legislature. As of December 1, 1997, the state kept track of 395 of which twelve were nominating commissions, 159 were policy commissions, 157 were advisory commissions, and 63 were licensing commission (data provided by Nancy Brown, 1998).

Since 1967, when the legislature successfully challenged the governor's exclusive right to name members of boards and commissions, there has been a trend to increase the number of boards and commissions, thereby giving the legislature greater input into the management of affairs traditionally assigned to the state administrative agencies. This trend was especially pronounced between 1967 and 1985 when democrats controlled the governorship. According to the governor's office, the combined number of appointees made by the speaker of the house and the senate president now equal that of the governor.

Policy and advisory commissions are generally created to bring expertise to the table to study complex or critical problems that are ostensibly beyond the capacity of state resources and to make policy or recommend policy changes. When created by the state legislature, they typically have sunset dates when they will expire. Since the early 1990s, the most common sunset date has been ten years after creation.

Looked at from a critical eye, the creation of policy and advisory commissions may also be viewed as a conservative attempt to slow down and/or limit changes of perceived activist governors and their appointees and to ensure positions of the Mormon church are included in the policy-making process. As to the first assertion, experts in state government concurred with the author's observation that, relatively speaking, very few laws result from commission policy recommendations. As to the second

assertion, Hrebenar and his colleagues (1987) reported that "Nearly every political commission, board, or study group contains an official or unofficial church representative" (p. 115).

### **Power Through the Budgetary Process**

Due to the shortness of legislative sessions, one of the most important policy-making processes is the combined budget/appropriations process. Inclusion in the budget signals executive support and ensures legislative attention.

The governor annually puts together the executive budget at the end of the calendar year so it may be submitted to the Joint Appropriations Committee of the legislature in December before the full legislature convenes in January. Administrative agencies estimate their individual budgets and present their requests to the governor's office. Most often, the sum of the item requests of all agencies exceeds the expected revenue, and a zero sum competitive game ensues in which the agencies must lobby the governor's Office of Planning and Budget for including additional budget items, the funding of new programs, and the maintenance or expansion of existing programs. Success in getting approved and appearing as a line item on the budget increases the chances of a new program being established or an existing program expanding. The only viable alternative is for the agencies to take on new tasks at the expense of others under a fixed revenue cap or to find a legislator who will champion the establishment of that function and argue for any needed funds to be included in the supplementary budget worked out by the Executive Committee of the Joint Appropriations Committee and legislative leaders in consultation with the governor. Needless to say, one consequence of this annual turf battle is the great difficulty for a new program to establish itself as a recurring line item in the governor's budget.

On the legislative side, Utah uniquely handles the budget submitted by the governor. Every member of the legislature sits on the appropriations committee of its house as part of a Joint Appropriations Committee and is assigned to one of ten subcommittees. Universal participation prevents a small elite from establishing its will, as well as ensuring a very full consideration of the budget and also legislative proposals with fiscal implications. Because there is also a strong inclination of the legislature not to approve tax increases or to establish new sources of taxes, budget increases are typically small and limited to increases in revenues from traditional sources forecast by the Legislative Fiscal Analyst or the governor's planning office.

In what appears to be a recurring budgetary squeeze, there are obvious ramifications for new programs and the implementation of recommendations from boards, commissions, and study groups. Gubernatorial requests and legislative approvals appear to be more dependent on annual and projected revenues and costs rather than on program objectives and how they are met; thus, the state ends up adopting only a few, if any, new programs in each legislative session. In the long run, the state's myriad boards and commissions also creates a tremendous understanding of its problems and a storehouse of unimplemented plans to resolve them.

### **Anti-Regulatory Attitudes Toward Building and Development**

Perhaps one of the best ways to understand the strong statewide sentiments against state involvement in building and development issues is to review the outcomes of two legislative attempts to manage land-use planning and building codes. First, public opinion came to the forefront in 1974, after the legislature approved the Utah Land Use Act as an amendment to the state constitution to require local land-use planning and zoning and placed it on the ballot for ratification. It was overwhelmingly defeated by a popular vote of 242,068 against to 157,438 for. According to Atwood and Mabey (1987), "This is the only law passed by the Utah legislature that has been so unpopular that it was revoked by popular referendum" (p. S-28). Land-use planning today remains a sacrosanct local option.

Second, in 1981, a very conservative Republican-dominated legislature, many of whose members had campaigned for less government similar to proponents of Proposition 13 in California, passed a bill to exempt schools from conforming to building codes (Atwood and Mabey, 1987; and Olson and Olson, 1994). This bill, also dubbed the "burn the children bill," "would have exempted the schools from safety and health factors in the interest of economy and local control" (Atwood and Mabey, 1987, p. S-27). It was vetoed by Governor Matheson, a two-term Democrat who succeeded Governor Rampton in 1977.

## **A BRIEF HISTORY OF EARLY SEISMIC SAFETY ACTIVITY IN UTAH**

In recent years, several histories of early seismic risk reduction activities established in Utah, highlighted by the creation of the Utah Seismic Safety Advisory Council in 1977, have been published, including Atwood and Mabey (1987), Olson and Olson (1994), and the Utah Seismic Safety Commission (1995). They provide an excellent discussion of critical events that made the USSAC possible and then led to its demise four years later. It is not the purpose of this case study to rehash this history in detail but to present a summary of how these events emerged and the factors that were responsible for their emergence. For the purposes of this study, it is easiest to follow three parallel developments, 1) the pursuit of knowledge concerning the nature of the earthquake threat in Utah, 2) the public policy response to the growing body of knowledge, and 3) the actions of the LDS church to prepare for earthquakes.

### **Understanding the Earthquake Threat**

Since the time of the Mormon arrival in Utah, there has not been a catastrophic earthquake in Utah. However, small tremors have been felt by residents beginning shortly after the first Mormon settlement in Nephi and Provo on December 1, 1853 (Atwood and Mabey, 1987). The gravity of the earthquake potential was initially conveyed by G.K. Gilbert, a geologist with the U.S. Geological Survey whose letter to the Salt Lake Daily Tribune was published on September 16, 1883 (reproduced in Atwood and Mabey, 1987, p. S-5a). Systematic gathering of geological and geophysical data was undertaken in 1907 when the University of Utah installed the first seismograph in the state on its campus, thanks in part to the 1906 San Francisco earthquake (Atwood and Mabey, 1987). The Utah seismograph network expanded in 1935 when the U.S. Coast and Geodetic Survey supported the installation of two more seismographs in the state, this time partially in response to the magnitude 6.6 1934 Hansel Valley earthquake in Utah, the largest since the state installed recording instruments. Instrumentation advanced dramatically in the 1950s when the military sponsored more seismographs to monitor nuclear bomb tests in Nevada and to document underground Soviet tests. According to Atwood and Mabey (1987), "By mid-1970, a permanent network of seismograph stations monitored the Wasatch Front and much of the intermountain seismic belt, and research by geologists and geophysicists had provided considerable knowledge of the potential for a major earthquake" (p. S-10).

As geological and geophysical knowledge was being accumulated, it was being integrated into earthquake hazard maps published in the Uniform Building Code (UBC), the building code voluntarily adopted by cities and counties throughout Utah. (See Mittler et al., 1996 for a history of codes and maps.) In the 1935 code, Utah was shown as being in seismic zone 2, an area of moderate seismicity. It remained there until 1969, when Ted Algermissen of the U.S. Geological Survey (USGS) created a new seismic risk map showing the Wasatch Front of Utah in the highest risk area, seismic zone 3. This map was adopted in the 1970 and 1973 UBC. The Wasatch Front has remained in seismic zone 3 since then, although a higher seismic risk zone 4 was added to the 1979 UBC map to identify major fault systems in California. There have been attempts by structural engineers to raise the Wasatch Front to a seismic zone 4 classification; recently, in 1992, a formal proposal to the UBC failed.

In 1976, the U.S. Geological Survey conducted studies in Utah to estimate the probability of a major earthquake striking the Salt Lake area within the next 100 years and to estimate the damages due to two scenario earthquakes. Any belief that a major earthquake was unlikely to strike Utah was diminished when the USGS (1976) reported that "the time interval for which there is a 63 percent probability of an event exceeding or equaling magnitude 7.5 may be as short as 100 years" (p. 37). Furthermore, in the most extreme case, the USGS indicated that casualties could reach 2,300 dead and 9,000 requiring immediate medical care. If there was a dam failure above a major urban area, the number of dead could approach 14,000.

By the mid-1970s, research results had consistently shown that much of Utah could be characterized as being in an active seismic region and was subject to major earthquakes. When risks were mapped, it was also evident that Utah, or more precisely the Wasatch Front where 80% of the state's population then lived, faced the second highest risk from earthquake in the United States, only behind California.

### **A Gathering Storm**

In their examination of the factors that ultimately led to the creation of the Utah Seismic Safety Advisory Council, Olson and Olson (1994) postulated that there were four key predecessors, "1) the prior existence of an ad hoc 'Governor's Committee on Geologic Hazards'; 2) the 1974-1975 creation of the California Seismic Safety Commission . . . ; 3) the 1976 USGS study . . . ; and 4) the 1974 election of an articulate professional geologist, Genevieve Atwood, to the Utah House of Representatives" (p.79). Atwood and Mabey (1987) added a fifth predecessor, the March 28, 1975, Pocatello Valley magnitude 6.0 earthquake near the Idaho-Utah border that was felt throughout the Salt Lake region, damaged several buildings in Salt Lake County, and sparked public interest in state legislation.

The formation of the Governor's Committee on Geologic Hazards was the outcome of efforts by an ad hoc group led by William P. Hewitt, Director of the Utah Geological and Mineral Survey (UGMS) from 1961 to 1973. The ad hoc group organized the first Governor's Conference on Geological Hazards in 1967 and the second governor's conference in 1973, which focused on "planning and liability aspects of seismic safety" (Olson and Olson, 1994, p. 79). Ultimately, the ad hoc group was recognized by an executive order of Governor Rampton and placed within a line agency (Natural Resources Department, where the UGMS was located) but without budgetary consequence. Olson and Olson (1994) claim that "this Governor's Committee on Geologic Hazards legitimated seismic safety as a public issue" (p. 79). Notwithstanding their assertion, it might also be argued that the initial line-item appropriation of \$30,000 annually to the University of Utah Seismograph Stations in 1971, which demonstrated both legislative and gubernatorial approval as well as inclusion in the budget, legitimated seismic safety as a state supported public issue.

Of the remaining variables, the 1976 USGS report clearly specified the state's earthquake problem; the creation of an advisory seismic safety commission in California served as a model for Utah to develop solutions and a precedent for action; the election of Genevieve Atwood provided an inside legislative advocate to push legislative initiatives; and the Pocatello Valley earthquake elicited public support for state action (Atwood and Mabey, 1987; and Olson and Olson, 1994). Looked at in combination, the conditions were seemingly in place for a legislative initiative to be launched and possibly succeed.

### **Earthquakes and the LDS Church**

According to Atwood and Mabey (1987), the LDS Church has been a "positive social factor," espousing "the ethics of preparedness, organization, and responsibility for self and family during



economic and natural hazard emergencies" (p. S-26). Possibly because church headquarters are in known earthquake country, leaders of the church have been influential in pointing out the hazard, and they have insisted on construction methods incorporating seismic safety considerations. "Although the LDS Church has not made proclamations, it has set policies in more subtle ways by requiring seismic design on its buildings, stressing personal preparedness and community response, and demonstrating a willingness to coordinate with state and local governments in time of disaster" (Atwood and Mabey, 1987, pp. S-29-30).

### **Establishing The Utah Seismic Safety Advisory Council**

Even though it appeared that in the 1975-76 legislative session, the first for Genevieve Atwood, that the elements were in place for the legislature to create a Utah seismic safety commission, her first attempt was unsuccessful (Atwood and Mabey, 1987, and Olson and Olson, 1994). Atwood sponsored a House Joint Resolution recommending a seismic safety commission 1975, but it failed. In 1976, however, she was able to place the earthquake issue on the interim study list for the 1977 general session. As a result of the subsequent study, which included a comprehensive background report created by the Office of Legislative Research (Sharp, 1976), and Genevieve Atwood's re-election, three pieces of legislation were drafted and submitted in the 1977 session. All three bills, including one to create the Utah Seismic Safety Advisory Council (USSAC), one to create a state program to review seismically vulnerable dams, and one to mandate the UGMS to conduct hazard mapping and critical facility site evaluations, were all eventually enacted with amendments (See Atwood and Mabey, 1987; and Olson and Olson, 1994, for detailed analyses of their passage).

Key to the passage of H.B. 46, authorizing the establishment of the USSAC, were several factors. Olson and Olson (1994) claim its "approval was primarily the result of three factors: 1) Many legislators personally liked Genevieve Atwood, respected her professional credentials, and accorded her high credibility on the earthquake issue. Moreover, they wanted to 'give her a program, something she could point to'; 2) Atwood repeated her commitment to the bill's sunset clause, ending USSAC after a four-year run; and 3) The fiscal picture was reasonably bright that year, with sufficient funds to support a number of these modest government programs" (p. 84).

### **The USSAC: Its Work, Its Demise, and Its Legacy**

In its brief four-year history, the Utah Seismic Safety Advisory Council was tasked with a mandate "to devise and to recommend . . . a consistent and comprehensive public policy framework for earthquake risk reduction in Utah" (Atwood and Mabey, 1987, p. S-16). By the end of its allotted time, the USSAC produced 22 "highly praised" technical reports, the last of which presented 18 general recommendations to implement and continue its work (USSAC, 1981). From these recommendations, Representative Nielsen and Senator Swan introduced four pieces of legislation requiring cities, counties, and schools to adopt seismic considerations in their construction and zoning practices, and Representative Nielsen introduced one bill to establish an earthquake safety officer in the office of the State Planning Coordinator to, in essence, carry on the work of the USSAC (Atwood and Maybe, 1987, and Olson and Olson, 1994). None of these bills was passed, other recommendations of the USSAC were mostly ignored, the reports were not widely distributed, and the USSAC folded up its tent and went away.

The demise of the USSAC was seemingly the result of two factors. Most important was the sunset clause, which spelled out the council's end. Almost guaranteeing that an extension would not be forthcoming was the failed attempt of Genevieve Atwood to get elected to the Utah Senate in 1980 after serving three terms in the House. When she left the legislature, there was no strong supporter of earthquake mitigation to take up the cause, although over the next decade, Representative Ray Nielsen would play an important role in keeping earthquake issues on the legislative agenda.

The fate of the proposed legislation was ultimately left to the same legislators who voted for the "burn the children" bill described earlier. Clearly the 1981 legislature was not interested in having the state mandate further regulations regarding construction in Utah.

According to Olson and Olson (1984), the critical factor that killed the bill to establish an earthquake safety officer in the state was the failure of the USSAC to concur with Governor Matheson's plan to locate the office. The governor proposed that it be located in the Division of Comprehensive Emergency Management (CEM), an agency created by the Utah Emergency Management Act in 1981 with his strong support. This was opposed by the USSAC, which feared CEM would be more disposed toward disaster response than earthquake mitigation. Without the two sides reaching agreement, the bill quietly died.

As a legacy, Atwood and Mabey (1987) stated

there is general agreement that the USSAC made a quantum difference in earthquake risk reduction by: 1) linking several of the isolated scientists and earthquake-safety activists into a network, 2) focusing attention on earthquake hazards, 3) writing a series of reports that documented the status quo of earthquake preparedness and provided a framework for action, 4) bringing together local leaders with national experts, 5) providing visibility for all individuals and agencies who wanted to contribute to earthquake hazard reduction, 6) providing an umbrella of political legitimacy to engineering, political, scientific, and other professional groups who lobbied their membership for increased acceptance of state-of-the-art techniques, and 7) providing a collegiality and supportive network that lasted beyond the lifetime of the organization (pp. S-16-17).

## **EVENTS BETWEEN THE END OF THE USSAC AND THE INITIATION OF THE USSC**

### **Federal Initiatives**

Even though the USSAC was formally disbanded and its recommendations were not implemented by the state legislature and administrative agencies, the void created by its demise was quickly filled by programs funded by federal agencies who took it upon themselves to do what the state would not. In 1981, shortly after the state legislature adjourned, the Federal Emergency Management Agency (FEMA) funded the position of Earthquake Program Officer in CEM. As described by Olson and Olson, 1994, the program officer then developed and submitted to FEMA a proposal to create the Utah Multi-Hazard Mitigation Project, which later produced a plan for the city of Ogden and Weber County to prepare for an earthquake-induced failure of the nearby Pineview Reservoir dam. This project was "earthquake-focused, mitigation-oriented, and aimed at local government" - a federal project which bypassed the state and worked "directly with local jurisdictions on a major seismic hazard" (Olson and Olson, 1994, p. 91).

In April, 1982, a meeting of representatives from federal agencies in the National Earthquake Hazard Reduction Program (NEHRP) was held to discuss the future directions of the program (Hays and Gori, 1984). The participants agreed to focus on five interrelated program elements, one of which was entitled Regional and Urban Earthquake Hazards Evaluation. This program element sought to concentrate a significant portion of the federal government's efforts on specific earthquake-vulnerable regions of the country in order to produce 1) quality data in a comprehensive information system, 2) synthesis earthquake hazards reports, 3) ground motion models and maps, and 4) loss estimation models, which

would combine to 5) foster the implementation of loss reduction measures by local governments. At that meeting, eight areas were targeted for study, with the Wasatch Front the highest ranked.

Acting on the NEHRP mandate, the U.S. Geological Survey initiated a three-year (later extended to five-year) program in 1983 to extend the study of earthquakes in Utah and to work for the implementation of earthquake mitigation policies by communities along the Wasatch Front. The goals of the program "were to 1) accelerate the development of the knowledge base on seismic sources, size, frequency of occurrence, and physical effects of earthquakes in a 10-county area along the Wasatch Front, including Salt Lake, Davis, Juab, Weber, Wasatch, Summit, Morgan, Cache, Utah, and Box Elder Counties and 2) foster implementation of earthquake hazards mitigation measures" (Gori and Hays, 1992, p. 3).

There were three important ingredients in the USGS approach that were intended to foster implementation. First, the USGS wanted local participation and invited the Utah Geological and Mineral Survey to work with it to develop and manage the program. Coincidentally, Governor Matheson only recently appointed Genevieve Atwood as the State Geologist and Director of the UGMS. Second, in each of the five years of the program, the USGS conducted annual workshops in Salt Lake City, bringing together scientists and engineers with federal, state, and local officials to share research results and discuss approaches to implement viable loss reduction strategies. The research was aided by the installation of a network of strong motion seismographs along the Wasatch Front. Third, as an avenue to disseminate information and to communicate with researchers and potential user groups, the USGS and the UGMS jointly began publication of a newsletter, the *Wasatch Front Forum* in 1983. After the USGS study ended in 1989, the focus of the newsletter switched to an emphasis on implementation activities aimed at reducing earthquake risk. The current Utah Geological Survey (UGS, formerly the UGMS) continues to publish the newsletter as the *Fault Line Forum*. (Hays and Gori, 1984; Atwood and Mabey, 1987)

### **State Activities**

In the spring of 1983, as a result of months of abnormally high rainfall and a late melting of the winter snowpack, several areas of the state were seriously affected by landslides, mudflows, and floods, leading to the first two federal disaster declarations being granted in Utah (UGMS, 1983). That Utah was both susceptible to catastrophic geological events and should also have plans for both disaster recovery and mitigation led Governor Matheson to convene a Governor's Conference on Geological Hazards in Salt Lake City on August 11-12, 1983. The conference was coordinated by the UGMS and CEM and sponsored by the Utah state legislature, the Utah League of Cities and Towns, the Utah Association of Counties, the University of Utah as well as FEMA and the USGS. Its purpose was "to bring together scientists and engineers, elected and appointed officials, leaders of business and private organizations, and private citizens to discuss geologic hazards and to recommend appropriate actions to all levels of government" (UGMS, 1983, p. 1).

Invited attendees of the governor's conference were divided into working groups to identify hazard-related problems and then to develop recommendations that could be implemented by either 1) the governor and the executive branch of state government, 2) the state legislature, 3) local government, or 4) federal agencies. The working groups made a total of 171 recommendations. With reference to seismic safety issues, the conference made many recommendations, which included that state legislation was needed to assure continued support of the University of Utah Seismograph Stations and related instrumentation activities, that further legislation was needed to require that all buildings and other facilities open to the public be designed and constructed in compliance with earthquake safety standards adopted by the state (a recommendation of the USSAC that failed to be enacted in 1981), and that legislation should be adopted to carry out a study to determine if statewide building codes and zoning

ordinances are needed to ensure that local governments carry out their land-use planning responsibilities. Because of FEMA's existing Multi-Hazard Mitigation Program and the recent start of the USGS program in Utah, both of which sought to improve knowledge concerning Utah's seismic threat, there was no call for the restoration of a state seismic safety commission; however, the conference recommended closer coordination of activities between state and federal agencies. (UGMS, 1983)

Despite numerous recommendations for legislative action emanating from the governor's conference, only one bill was drafted and introduced in the 1984 session. H.B. 28, the Geologic Hazards Information Act, sought to "require that a buyer of property be informed of known geologic hazards that could affect that property" (Atwood and Mabey, 1987, S-33). Days after the initial drafting of H.B. 28, on October 28, 1983, a major earthquake, magnitude 7.3, occurred in Borah Peak, Idaho. This earthquake was significant because it indicated to both scientists and politicians that catastrophic earthquakes could recur in the intermountain seismic belt, and, scientists believed it was a model of what might happen on the Wasatch Front (Gori and Hays, 1992). For the USGS and UGMS, it also provided a dramatic start to their five-year study. Despite the earthquake and its implications, the bill was not passed.

During the five years of the USGS study, in which the federal government spent \$15 million, advocates of greater state involvement in seismic mitigation came together to push for new state programs and significant funding to make a difference. Critical to this effort was the cooperation among the UGMS, CEM, and the University of Utah Seismograph Stations, whose directors, Genevieve Atwood, Lorayne (Tempest) Frank, and Walter Arabasz, respectively, "forged what persists today as an effective three-way leadership of Utah's state earthquake program" (Arabasz, 1998, Appendix A, p. 1). Their labors led to organized attempts to commit the state to establish and annually fund an up-to-date earthquake instrumentation program and to create a new state body to recommend hazard mitigation policies that could be implemented by state and local governments.

### **Earthquake Instrumentation**

By late 1988, when the USGS Wasatch Front initiative was winding down, Walter Arabasz, Director of the University of Utah Seismograph Stations (UUSS), evaluated the state's aging earthquake instrumentation network to determine if it was still capable of meeting the state's data collection needs. After concluding that "the existing seismographic instrumentation in Utah is out-of-date, seriously inadequate, and becoming increasingly unreliable for meeting the state's needs - for earthquake monitoring, emergency response and public safety, risk management, hazard mitigation, and defensive engineering design," he submitted a proposal to the UGMS for \$500,000 in available mineral-leasing funds (to be combined with \$100,000 in matching funds from the USGS) to replace old, unreliable computers and to purchase state-of-the-art equipment as a start to develop an up-to-date state network (UUSS, 1988, Executive Summary, p. 1). The UGMS was unable to fund the proposal.

While she could not provide UGMS funds for upgrading instrumentation, UGMS Director Genevieve Atwood set up a meeting on February 4, 1989, with three legislative appropriations committees (natural resources, higher education, and public safety), so she, Walter Arabasz, and Jim Tingey of CEM, could present arguments to the legislature to form a special subcommittee to study the state's needs for earthquake-related instrumentation. The three colleagues were successful, and Representative Ray Nielsen, who had sponsored four of the five bills recommended by the USSAC in 1981, filed a study resolution (part of H.J.R. 34) for a bipartisan committee from both houses to evaluate the instrumentation needs of the state and opportunities for funding, and then to recommend action in the 1990 annual session.

The bipartisan committee was established to conduct the study. Because of its technical nature, the study was actually arranged by Walter Arabasz and Genevieve Atwood, who provided \$5,000 through

the UGMS to hold a meeting of a blue-ribbon "panel of (eight) internationally and nationally prominent seismologists, earthquake engineers, and earthquake policy experts" on August 23-25, 1989, in Alta, Utah (Arabasz, 1990, p. vi). The so-called Utah Policy Panel on Earthquake Instrumentation was co-chaired by Senator Craig Peterson and Representative Jack Redd, both practicing engineers.

The study panel concluded that the original proposal of the UUSS to the UGMS both understated the deficiencies in the existing instrumentation and also sought insufficient funds to upgrade the network and meet the needs of the states. It recommended a much more comprehensive "bare bones" policy that could be implemented if the state would appropriate \$2.69 million on a one-time basis and provide \$382,000 annual ongoing funds to modernize and maintain the seismic instrumentation network (Arabasz, 1990). In its examination of the panel report, the Office of the Legislative Fiscal Analyst (1989) concurred with the findings of the panel and agreed that the \$2.69 million recommendation was appropriate "if the Legislature decides that the program is of sufficient priority" (p. 3).

The positive finding of the interim study panel and concern generated by the October 17, 1989, Loma Prieta earthquake in California led its co-chair, Senator Peterson, to sponsor S.B. 83 in 1990, which would establish a Seismic Instrumentation Board within the UGMS and which would appropriate the full amount requested by the panel. S.B. 83 was voted out of committee unanimously and overwhelming approved by the full senate. Because it contained an appropriation request for over \$100,000, the bill was tabled for final consideration at the end of the session along with all other appropriation bills. Its companion bill, H.B. 342 sponsored by Representative LeBaron, was also voted out of committee with only one negative vote. Before a final vote of the house, again because it contained an appropriation request for over \$100,000, the bill was sent to the House Rules Committee for consideration to be included in the supplemental appropriations bill at the end of the session. When it came time for the governor and the legislature to agree on programs to fund in a supplemental appropriation of \$151 million, one of the largest on record, public education got \$130 million and seismic instrumentation was shut out. After many caucuses and meetings to determine what programs should be funded in the supplemental bill package, the legislature's Executive Appropriations Committee gave earthquake instrumentation a low priority (Arabasz, 1990b).

Shortly after the 1990 legislative session was adjourned, Representative LeBaron successfully requested the Legislative Management Committee to add the creation of the Seismic Instrumentation Board as an interim study assignment of the State and Local Affairs Interim Committee. This led to the introduction of H.B. 156 sponsored by Representatives LeBaron and Nielsen in 1991 to provide the full appropriation for seismological instrumentation recommended by the Utah Policy Panel on Earthquake Instrumentation. This bill was not passed. No further attempt has been made in the state legislature to fund a major overhaul of the earthquake instrumentation system.

### **State Hazard Mitigation Policies, A New Approach**

Following the end of the USGS five-year study of the Wasatch Front, attempts began to re-establish formal state involvement in seismic safety. Instead of attempting to create a new independent board commission, leaders in this effort approached existing groups to take up their case.

### **Working with the Utah Advisory Council on Intergovernmental Relations**

On May 26, 1989, Walter Arabasz and Genevieve Atwood made a presentation to the Utah Advisory Council on Intergovernmental Relations (UACIR) outlining recommendations to reduce earthquake hazards in the state. The UACIR was selected because it was housed in the governor's Office of Planning and Budget, its executive director was the state planning coordinator, and membership

included state legislators (one being Representative Ray Nielsen), agency officials, and elected local officials. The recommendations had all originally been suggested by the USSAC, the 1983 Governor's Conference, and the USGS study.

The UACIR responded positively. It asked Walter Arabasz and Genevieve Atwood, as well as Lorayne Frank at CEM, to prepare a prioritized list of recommendations (Atwood et al., 1989a) and later, after the Loma Prieta earthquake, justifications and cost-benefit analyses for the first eight top priority recommendations (Atwood et al., 1989b). The latter report was one of the last that Genevieve Atwood participated in as Director of the UGMS; she resigned from this position in late 1989 and was replaced by Lee Allison. At its December 8, 1989, meeting, the UACIR "decided to support legislation to address three points: 1) geologic hazards site investigations for government facilities, 2) geologic hazards ordinances, and 3) natural hazards education" (Christenson, 1990a, p.1). Also at that meeting, Representatives Ray Nielsen and Frank Knowlton tentatively agreed to sponsor the legislation.

In addition to the seismic instrumentation bill described above, five bills and one resolution concerning earthquake hazards and safety were introduced in the 1990 legislative session. Like the seismic instrumentation bill, all failed. In spite of the failure, numerous topics were brought before the legislature. One bill, H.B. 392, sponsored by Representative Nielsen, contained the legislative goals of the UACIR. It would require geologic site investigations for all public-owned essential facilities and special-occupancy structures, would require geologic hazards ordinances in all cities and counties where geologic hazards maps are available, and would require earthquake safety education in elementary school and natural hazards education in high school. The remaining bills and resolution were prompted by the desires of their sponsors, most of whom had a heightened awareness of the earthquake threat in Utah triggered by the Loma Prieta earthquake. H.B. 371, sponsored by Representatives Nielsen and Gene Davis, would authorize the UGMS to incorporate knowledge gained from the USGS study to modify the current UBC in order to establish seismic zones for the state. H.B. 408, sponsored by Representative Kim Burningham, would require that earthquake vulnerability assessments be performed for Wasatch Front schools, including an estimate of retrofit costs, and that a fund be established in the State Office of Education to match funds provided by local school districts to retrofit buildings. H.B. 347, sponsored by Representative John Valentine, would require earthquake rescue as part of fire fighter training. H.B. 385, sponsored by Representatives Davis, Nielsen, and Mike Dmitrich, would require the State Commissioner of Insurance to prepare and make available publications describing available insurance coverage for earthquake damage and losses. Finally, H.J.R. 20, sponsored by Representatives Afton Bradshaw and Burningham, would add the evaluation of the safety level of all state school buildings in the event of an earthquake to interim study. (Christenson, 1990b, p. 2)

At the sixth annual Wasatch Front Earthquake Conference, held on June 11-12, 1990, just months after the defeat of the six seismic bills, Mike Christensen, Executive Director of the UACIR, and a legislative panel of seven of the eight legislators who sponsored bills in the 1990 session gave their opinions concerning the governor's and the legislature's perspectives respectively toward state involvement in earthquake hazard mitigation. Their views indicated both support for the aims of a state program and also the political realities of creating a formal state program.

Key points from Mike Christensen's presentation included:

- Governor's office supports addressing Utah's earthquake problems
- Actions are a shared responsibility and must involve cooperative programs between state and local governments, school districts, and the private sector
- All costs must be weighed against benefits and other competing needs

- Legislation should address broad needs of the state in a balanced way, yet be practical and realistic (Sixth Annual Wasatch Front Earthquake Conference, 1990)

Key points from the legislative panel (Senator Peterson, Representatives Bradshaw, Burningham, Davis, LeBaron, Nielsen, and Valentine) included:

- Strong state leadership of the earthquake program is needed. Commissions tend to be expensive and difficult to fund, and a new commission to provide such leadership is unlikely (may need to rely on ad hoc coordination)
- The legislative package should consist of several individual bills, not a single bill
- Need a comprehensive, unified approach addressing needs for both short-term emergency response and longer-term mitigation (many of these concerns were addressed in earthquake-related bills introduced in 1990 session)
- The cost to make Utah prepared for and protected from earthquakes will be unavoidably high (multi-millions of dollars), but a necessary and good investment; a step-wise, multi-year approach has to be taken
- Legislators react more to their constituents than to state agencies, and an educated constituency with lobbying and letter writing would help passage of legislation (favorable public opinion is insufficient)
- People assume and expect that work is being done to make Utah earthquake safe; public perception that the problem is under control is not true
- The earthquake threat in Utah isn't just a Wasatch Front problem (Sixth Annual Wasatch Front Earthquake Conference, 1990)

At a plenary session of the same conference, John Fellows of the Office of Legislative Research and General Counsel discussed what should be done next. He argued that a working group should be selected to refine short- and long-term goals and programs that could then be prioritized by an interim study committee of the legislature. From that list, legislation could be written.

Ideas from the sixth annual Wasatch Front Earthquake Conference were quickly implemented and became the foundation for the eventual re-establishment of the seismic safety commission. Ten days after the close of the conference, on June 22, 1990, Governor Bangerter authorized the UACIR "to coordinate activities necessary for an effective, balanced state earthquake program" (Nielsen, 1990). As part of the governor's directive, the UACIR was tasked with generating sufficient input from which a comprehensive package of legislation could be developed by the State and Local Affairs Interim Committee of the state legislature. To accomplish this goal, the UACIR and its new chair, Representative Ray Nielsen, established an Earthquake Task Force in August.

The Earthquake Task Force (1990) produced its recommendations for earthquake legislation, which were transmitted to the State and Local Affairs Interim Committee in September. The recommendations were arranged in five groups in order of priority. In Group 1 was one item, the establishment of a new seismic safety commission to oversee and coordinate the state earthquake program. Earthquake instrumentation and a requirement for plan checks for all buildings to more effectively implement the Uniform Building Code made up Group 2. Groups 3 and 4 contained seven items including seismic vulnerability assessments of critical buildings and structures and increased training and public awareness. Group 5 contained 11 "second or lower priority" items, which included the retrofit of seismically unsafe structures.

The State and Local Affairs Interim Committee endorsed the establishment of a Natural Disaster Commission to be located in Division of Comprehensive Emergency Management. Representatives

LeBaron and Nielsen sponsored H.B. 11 in the 1991 legislative session, which would create the Natural Disaster Commission. It contained a fiscal note, designating that \$138,000 be provided for staff and an executive director. Three additional seismic bills, similar to those introduced in the previous session, were also introduced. These were H.B. 44 sponsored by Representative Davis concerning earthquake insurance; H.B. 156 sponsored by Representative LeBaron (with companion bill S.B. 169 sponsored by Senator Peterson) improving earthquake instrumentation; and H.B. 229 sponsored by Representative Burningham concerning the seismic vulnerability assessment of schools. When introduced, H.B. 156 asked for the same appropriation as in 1990, slightly over \$3 million, and H.B. 229 asked for \$250,000. (Allison, 1990; and Anonymous, 1991).

None of the bills introduced in 1991 were passed. The stumbling block for most was the request for appropriations. This objection was first raised by members of the State and Local Affairs Interim Committee who expressed their reluctance to appropriate funds for an event that might not occur in a lifetime and who also wondered how the state would pay for expected annual requests (Gorrell, 1990). Then, during the session, final revenue projections suggested that supplementary appropriations would be lower than anticipated, "putting a tight squeeze on all appropriations requests" (Earthquake Task Force, 1991). The closest a bill came to passage was H.B. 11. Because of the fiscal note, it was held up by the House Rules Committee after being favorably reported out of committee. On the last day of the session, the sponsors realized that opposition to the potential appropriation would likely kill any chances the bill had of passing. To move the bill, they deleted the fiscal obligation and had the bill put up for a vote. It was unanimously passed in the house and sent to the senate, where adjournment preceded any consideration of the bill.

### **Working with the Disaster Emergency Advisory Council**

The resounding defeat of the package of seismic safety bills in the 1991 legislative session led Lee Allison, Walter Arabasz, and Lorayne Frank to find an alternative method of creating a state seismic safety commission (Allison, 1991). Lee Allison (1991) proposed two options, including 1) establishing an independent body through an executive order, and 2) having the Governor's Disaster Emergency Advisory Council (DEAC) of CEM establish an earthquake committee to carry out the same functions.

Because funding had been the major roadblock to the creation of a new commission, Lorayne Frank (1991) suggested that the DEAC option might be more viable because CEM could serve as staff and an executive director might be hired using a grant from FEMA. After FEMA agreed to provide a one-year grant to CEM for this purpose, the Utah Earthquake Advisory Board (UEAB) was created in October, 1991 as a subcommittee of DEAC.

The UEAB was reorganized in May, 1992, in order to streamline its operations. At that time, a ten-person board was created and, within it, a five-person executive group was named to lead the UEAB. Lee Allison, Walter Arabasz, and Lorayne Frank were named members as were Mike Stransky of the American Institute of Architects and Chair of the Western Mountain Region Task Force on Disaster Preparedness and Les Youd, Professor of Civil Engineering, Brigham Young University (Jarva and Carey, 1992). To actively involve other interested parties, including other state agencies, local governments, private companies, and professional organizations, five standing committees composed of UEAB members and representatives of these organizations were formed.

Topping the UEAB's priorities were "creating a *California at Risk*- type document for Utah [and] obtaining a Governor's Resolution recognizing the creation of the UEAB" (Jarva and Carey, 1992, p.8). During the 1993 legislative session, Senator Peterson sponsored a Senate Concurrent Resolution, S.C.R. 3, which resolved that the legislature and the governor recognize the Utah Earthquake Advisory Board. The resolution was passed and signed by the governor.



An early draft of *Utah at Risk* was written in May, 1983, with references to seismic risk reduction plans published in California, Nevada, Oregon, and Washington. It delineated criteria for prioritizing earthquake hazard reduction initiatives and contained unprioritized lists of initiatives. Six specific criteria were listed:

1. The potential to save lives and prevent injuries
2. The potential to avoid property and economic losses
3. The potential to reduce social and economic disruption
4. The relative ease with which the action can be implemented
5. The degree to which each action supports or complements other actions
6. The dollar cost associate with the action (Utah Earthquake Advisory Board, 1983, p. 4)

A more complete working draft of *Utah at Risk* was scheduled for completion by mid-summer, 1994 (Allison, 1994).

### **CREATING THE UTAH SEISMIC SAFETY COMMISSION**

Abruptly, on January 17, 1994, the fate of the Utah Earthquake Advisory Board changed. After word reached Utah of the Northridge earthquake in the San Fernando Valley in Los Angeles, Representative Ken Burningham became convinced that it was now time for Utah to do something about earthquakes. Because the 1994 session of the Utah legislature had just convened, he sponsored a bill, H.B. 358, with Representatives Nancy Lyon and Afton Bradshaw, to create an independent Utah Seismic Safety Commission. With advice from members of the UEAB, Representative Burningham proposed a 13-member advisory commission that would be similar in scope to California's commission and similar in composition to the UEAB, retaining its ten board members, but adding one member of the house, one member of the senate, and the Commissioner of the Department of Public Safety as members. It was decided that there would be no fiscal impact; support for the new commission would be provided through the budgets of participating state agencies including CEM and the Utah Geological Survey. As was common for commissions created at this time, a ten-year sunset clause was included in the law.

Governor Leavitt took a neutral stance on the bill. Despite his lack of support, it was quickly passed by the house and sent to the senate. On the last day of the session, the senate passed the bill and it was enrolled. The governor signed it into law and it went into effect on July 1, 1994.

#### **Factors for Success**

The 1994 legislative session proved to be the opportune time to reinstate the state seismic safety commission for several reasons. First, one legislator, Representative Ken Burningham, took it upon himself to champion the cause, to sponsor the legislation, and to work relentlessly to get the bill creating the Utah Seismic Safety Commission enacted. His motivation was school safety, and he spoke often to his legislative colleagues about the need to protect children from potential earthquakes. Representative Burningham was once a school teacher and was inspired by the devastation of the Northridge earthquake (as he had previously been by the Loma Prieta earthquake in 1989) to have the state develop and implement a hazard mitigation program for schools. Because of his previous association with the state agency heads and others in the earthquake mitigation community who were promoting the re-establishment of the state seismic safety commission, he was able to quickly have a bill drafted that would satisfy both the agency heads and the legislature.

Second, there were several aspects to the legislation that made it attractive to the conservative legislature. The bill was fiscally neutral; it did not request any new appropriations. The bill also added

members of the senate and the house to the commission and made the commission responsible to the legislature. If enacted, seismic safety would shift from being affiliated with a governor's advisory board to becoming an independent commission ultimately reporting to the legislature. In addition, because the cost of operations of the commission would be absorbed in the budgets of executive agencies, there was no commitment to any future funding requests.

Third, the governor did not come out against the formation of a new commission. Although he had been on record as an opponent of the creation of new commissions, Governor Leavitt and his aides took a neutral position on this piece of legislation and stayed on the sidelines.

Fourth, the long-term advocates of seismic safety shared a desire for a reinstated seismic safety commission. There were no competing alternatives to confuse the issue, and there was no significant opposition to the creation of the bill or to any element in it.

Fifth, in reaction to the possibility that a disastrous event such as the Northridge earthquake might strike Utah, there was a general feeling in both the state and the legislature that the state should be more involved with seismic safety.

Sixth, because the existing Utah Earthquake Advisory Board had already prepared a draft of *Utah at Risk*, a document intended to present programs that the state could initiate to increase seismic safety in Utah, there was confidence that the new seismic safety commission could quickly compose a strategic plan that prioritized issues and solutions, an important goal of the legislation.

### **The New Utah Seismic Safety Commission**

As specified in H.B. 358, the Utah Seismic Safety Commission became effective on July 1, 1994. Its membership was designated as being composed of the following:

1. the commissioner of the Department of Public Safety;
2. the director of the Division of Comprehensive Emergency Management;
3. the director of the Utah Geological Survey;
4. the director of the University of Utah Seismograph Stations;
5. the executive director of the Utah League of Cities and Towns or his designee;
6. a representative from the Structural Engineers Association of Utah biannually selected by the membership;
7. the director of the Division of Facilities and Construction Management or his designee;
8. the executive director of the Department of Transportation or his designee;
9. the State Planning Coordinator or his designee;
10. a representative from the American Institute of Architects, Utah Section, biannually selected by the membership;
11. a representative from the American Society of Civil Engineers, Utah Section, biannually selected by the membership;
12. a member of the house of representatives appointed biannually by the speaker of the house; and
13. a member of the senate, appointed biannually by the president of the senate.

The commission members annually select one of its members to serve as chair of the commission. The duties of the commission are considered advisory in nature. Its primary tasks were originally conceived to be 1) review earthquake-related hazards and risks to the state, 2) prepare and prioritize recommendations to state and local government or other appropriate agencies to identify and mitigate these hazards and risks, 3) act as a source of information and as a promoter of earthquake loss reduction measures, and 4) prepare a strategic seismic planning document to be presented to the State and Local

Interim Committee before the 1995 annual general session of the legislature. The strategic planning document is to be periodically updated to monitor progress toward achieving the goal of loss reduction. To accomplish its tasks, staff are provided by the CEM and UGS.

## POSTSCRIPT

Since inception, the Utah Seismic Safety Commission has published a strategic plan for earthquake safety in Utah (USSC, 1995). The plan includes 33 recommended strategies under the following five objectives:

1. Increase earthquake awareness and education
2. Improve emergency response and recovery
3. Improve the seismic safety of buildings and infrastructure
4. Improve essential geoscience information
5. Assess earthquake risk

Most strategies come with a price tag and would require either some form of executive or legislative action or voluntary compliance. While the plan was being developed, Janine Jarva, editor of the *Fault Line Forum*, commented on the political environment in which the recommended strategies would be presented. Jarva (1994) observed that "To think that the Governor or Legislature will readily implement any broad, expensive, multi-initiative program is probably unrealistic. Therefore, an incremental approach, the progressive transformation over the long term, must be our strategy . . . Future initiatives will receive more scrutiny and possible challenges if we ask for things that carry governmental regulation with them. Anything that costs money or creates new regulations is likely to meet resistance" (p. 4).

After the strategic plan was published, the USSC apparently underestimated the threshold for government resistance to any attempt on their part to implement a program of loss reduction measures. There was an immediate attempt to initiate three programs aimed at seven strategies. A proposal was presented to the governor in 1995 for inclusion of the three programs in his 1996 budget. The most costly was a 25-year spending plan to reinforce state buildings (\$10.5 million annually) excluding the capitol building. The others sought to establish and maintain an earthquake education program and to buy and operate 108 strong-motion instruments. The outcome was disastrous. When the governor's budget was issued, only a one-time only allocation for the strong-motion instruments was present, and the funds for that were lost when the legislative fiscal analyst deleted the item when the budget was submitted to the legislature.

Over time, the focus of the USSC has shifted to emphasize actions that can be and have been accomplished voluntarily to reduce earthquake risks. To meet this aim, the USSC, in 1996, conducted a survey through the *Fault Line Forum* to identify what Utah businesses, government agencies, and school districts had planned for and implemented to prepare for a catastrophic earthquake. Results demonstrated that in this "bottom-up" approach, there were many companies, agencies, and other groups working toward reducing risk and improving their preparedness. Included as examples of building retrofits were the strengthening of the American Fork and Provo tabernacles by the Mormon church (Siegel, 1996).

The USSC has also conducted annual conferences aimed at improving earthquake preparedness in small and large business organizations. These have been held in September beginning in 1996. The first USSC earthquake conference was entitled "Earthquakes in Utah: Will Your Business Survive?" The second and third have been entitled "Earthquakes: Mean Business." The latter two were held as part of Salt Lake City and Salt Lake County's week-long "It's Our Fault" Earthquake Preparedness Week.

In its first four years of existence, because of its inability to convince either the governor or the legislature to appropriate funds for the implementation of strategies developed in its strategic plan, the USSC has become less of a legislative advocate and more of a community outreach organization. Its most successful endeavors have been to educate the public, the business community, and school children to both understand the risks facing them and their communities and to act responsibly by adopting loss reduction measures.

Whether the USSC and other supporters of earthquake mitigation in Utah will ever devise a successful strategy to gain needed gubernatorial and legislative financial support for the programs outlined in the USSC strategic plan remains to be seen.

## REFERENCES

Allison, M. Lee, 1990. Memorandum to UACIR Earthquake Task Force Members, Re: Results of the December 7, 1990 ACIR Meeting Regarding Earthquake Issues. December 17.

Allison, M. Lee, 1991. Memorandum to Mike Christensen, Re: Options for Natural Disaster Commission. April 22.

Allison, M. Lee, 1994. Memorandum to Kathy Clarke, Re: State Earthquake Program. January 24.

Anonymous, 1991. "Earthquake Bills Fail in the 1991 Legislature" *Wasatch Front Forum* Vol. 7, No. 2.

Arabasz, Walter J., Editor, 1990a. *Earthquake Instrumentation for Utah: Report and Recommendations of the Utah Policy Panel on Earthquake Instrumentation*. Open-File Report 168. Revised October 17, 1989. Salt Lake City, Utah: Utah Geological and Mineral Survey.

Arabasz, Walter J. 1990b. Memorandum to the Utah Policy Panel on Earthquake Instrumentation, Re: Outcome of Earthquake Instrumentation Initiative. February 28.

Arabasz, Walter J., 1998. Letter to Elliott Mittler. August 10.

Arrington, Leonard J., 1958. *Great Basin Kingdom*. Cambridge, Massachusetts: Harvard University Press.

Atwood, Genevieve and Don R. Mabey, 1987. "Reducing Earthquake Risk in Utah: Past Trends and Future Opportunities," in Paula L. Gori and Walter W. Hays, Editors, *Assessment of Regional Earthquake Hazards and Risk Along the Wasatch Front, Utah*. U.S. Geological Survey Open-File Report 87-585. Volume 2. Reston, Virginia: U.S. Geological Survey.

Atwood, Genevieve, James Tingey, and Walter Arabasz, 1989a. *Recommendations to Reduce Earthquake Hazards to the Utah Advisory Council on Intergovernmental Relations*.

Atwood, Genevieve, Gary E. Christenson, James Tingey, and Walter Arabasz, 1989b. *Justification and Cost-Benefit Analysis of Recommendations to Reduce Earthquake Losses for the Utah Advisory Council for Intergovernmental Relations*.

Brockbank, W. Hughes, 1970. "What We Need in the Legislature is the Capacity to Get Excited about Something and to Stay Excited for a Long Time. Unless Someone Gets Excited about a Bill,

- Nothing Will be Done," in JeDon Emenhiser, Editor, *The Dragon on the Hill: Utah's 38<sup>th</sup> Legislature: Analysis and Comment*. Salt Lake City, Utah, University of Utah Press.
- Campbell, Eugene E., 1978. "Governmental Beginnings," in Richard D. Poll, General Editor, *Utah's History*. Provo, Utah: Brigham Young University Press.
- Christenson, Gary E., 1990a. Letter to Walter Arabasz. January 11.
- Christenson, Gary E., 1990b. "Earthquake Bills in the 1990 Utah Legislature," in *Wasatch Front Forum*, Volume 6, No. 1-2.
- Citizens Conference on State Legislatures, 1971. *The Sometime Governments: A Critical Study of the 50 American Legislatures*. New York: Bantam Books.
- Earthquake Task Force of the Utah Advisory Council on Intergovernmental Relations, 1990. *Recommendations for Earthquake Legislation to the State and Local Affairs Interim Committee*. September 19.
- Earthquake Task Force of the Utah Advisory Council on Intergovernmental Relations, 1991. *Legislative Update, Earthquake Bills, Final Results*. March 6.
- Elazar, Daniel J., 1984. *American Federalism: A View from the States*. 3rd Edition. New York: Harper and Row.
- Frank, Lorayne, 1991. Memorandum to Commissioner D. Douglas Bodrero, Re: Disaster Emergency Advisory Council and Proposed Earthquake Advisory Board. April 25.
- Gori, Paula L. and Walter W. Hays, 1992. "Introduction," in Paula L. Gori and Walter W. Hays, Editors, *Assessment of Regional Earthquake Hazards and Risk Along the Wasatch Front, Utah*. U.S. Geological Survey Professional Paper 1500-A-J. Washington, D.C.: U.S. Government Printing Office.
- Gorrell, Mike, 1990. "Committee Endorses Formation of Disaster Commission," *Salt Lake Tribune*, October 21, p. BB.
- Hays, Walter W. and Paula L. Gori, 1984. "Summary and Background," in Walter W. Hays and Paula L. Gori, Editors, *Proceedings of Conference XXVI, A Workshop on "Evaluation of Regional and Urban Earthquake Hazards and Risk in Utah."* Open-File Report 84-763. Reston, Virginia: U.S. Geological Survey.
- Hill, Marvin S., 1978. "The Rise of the Mormon Kingdom of God," in Richard D. Poll, General Editor, *Utah's History*. Provo, Utah: Brigham Young University Press.
- Hrebenar, Ronald J., Melanee Cherry, and Kathanne Greene, 1987. "Utah: Church and Corporate Power in the Nation's Most Conservative State," in Ronald J. Hrebenar and Clive S. Thomas, Editors, *Interest Group Politics in the American West*. Salt Lake City, Utah: University of Utah Press.
- Jarva, Janine L., 1994. "Earthquakes and Politics, Get Involved!" *Fault Line Forum*, Volume 10, No. 1, pp. 3-4.

- Jarva, Janine L. and Bob Carey, 1992. "Utah Earthquake Advisory Board 'Regroups,'" *Wasatch Front Forum*, Volume 8, No. 2.
- Linford, Ernest, 1949. "Utah: Contrary State," in Robert S. Allen, Editor, *Our Sovereign State*. New York: Vanguard Press.
- Maxwell, Neal A., 1970. "We Can View with Alarm But Do Nothing to Strengthen Local Governments, or We Can Act to Preserve a Meaningful Federal System. What Happens to State Legislatures in the Next Decade Will Be a Decisive Factor," in JeDon Emenhiser, Editor, *The Dragon on the Hill: Utah's 38th Legislature: Analysis and Comment*. Salt Lake City, Utah, University of Utah Press.
- Mittler, Elliott, Craig Taylor, and William Petak, 1996. *National Earthquake Probabilistic Hazard Mapping Program: Lessons for Knowledge Transfer*. Working Paper #92. Boulder, Colorado: Natural Hazards Research and Applications Information Center, Institute of Behavioral Science, University of Colorado.
- Nielsen, Ray, 1990. Letter to Walter J. Arabasz. August 6.
- Office of the Legislative Fiscal Analyst, 1989. *Utah Earthquake Instrumentation, A Report of the Interim Appropriations Committee of the Utah State Legislature*. Salt Lake City, Utah: Office of the Legislative Fiscal Analyst.
- Olson, Richard Stuart and Robert A. Olson, 1994. "Trapped in Politics: The Life, Death, and Afterlife of the Utah Seismic Safety Advisory Council," *International Journal of Mass Emergencies and Disasters*, Vol. 12, No. 1 (March).
- Peterson, F. Ross, 1978. "Utah Politics Since 1945," in Richard D. Poll, General Editor, *Utah's History*. Provo, Utah: Brigham Young University Press.
- Sharp, V.J., 1976. *Earthquake Hazard Reduction in Utah, A Report to the 42nd Legislature*. Utah Office of Legislative Research Report No. 14. Salt Lake City, Utah: Office of Legislative Research.
- Siegel, Lee, 1996. "Utah is Shaking with Earthquake Upgrades," *Salt Lake Tribune*, October 1, p. B2.
- Sixth Annual Wasatch Front Earthquake Conference, 1990. *Perspectives and Recommendations for 1991 Legislation*. June 11-12.
- Thorpe, Francis Newton, 1909. *The Federal and State Constitutions, Colonial Charters, and Other Organic Laws of the States, Territories, and Colonies Now or Hereafter Forming the United States of America*. Washington, D.C.: Government Printing Office.
- United States Geological Survey (USGS), 1976. *A Study of Earthquake Losses in the Salt Lake City, Utah Area*. U.S. Geological Survey Open-File Report 76-89. Denver, Colorado: U.S. Geological Survey.
- University of Utah Seismograph Stations (UUSS), 1988. *Modernization and Expansion of Seismic Network Instrumentation*. Proposal to the Utah Geological and Mineral Survey.
- Utah Earthquake Advisory Board, 1993. *Utah at Risk*. Draft.

Utah Geological and Mineral Survey (UGMS), 1983. *Governor's Conference on Geologic Hazards*. Circular 74. Salt Lake City, Utah: Utah Geological and Mineral Survey.

Utah Seismic Safety Advisory Council (USSAC), 1981. *A Brief Summary of Earthquake Safety in Utah and Abbreviated Recommendations for Risk Reduction*. USSAC-22. Salt Lake City, Utah: Utah Seismic Safety Advisory Council.

Utah Seismic Safety Commission, 1995. *A Strategic Plan for Earthquake Safety in Utah*. Salt Lake City, Utah: Utah Seismic Safety Commission.