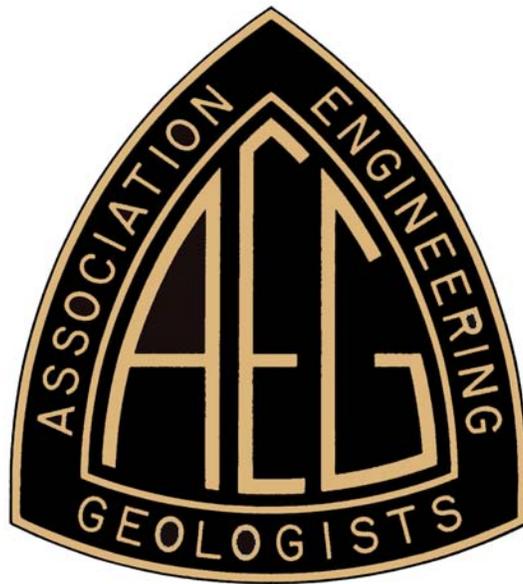
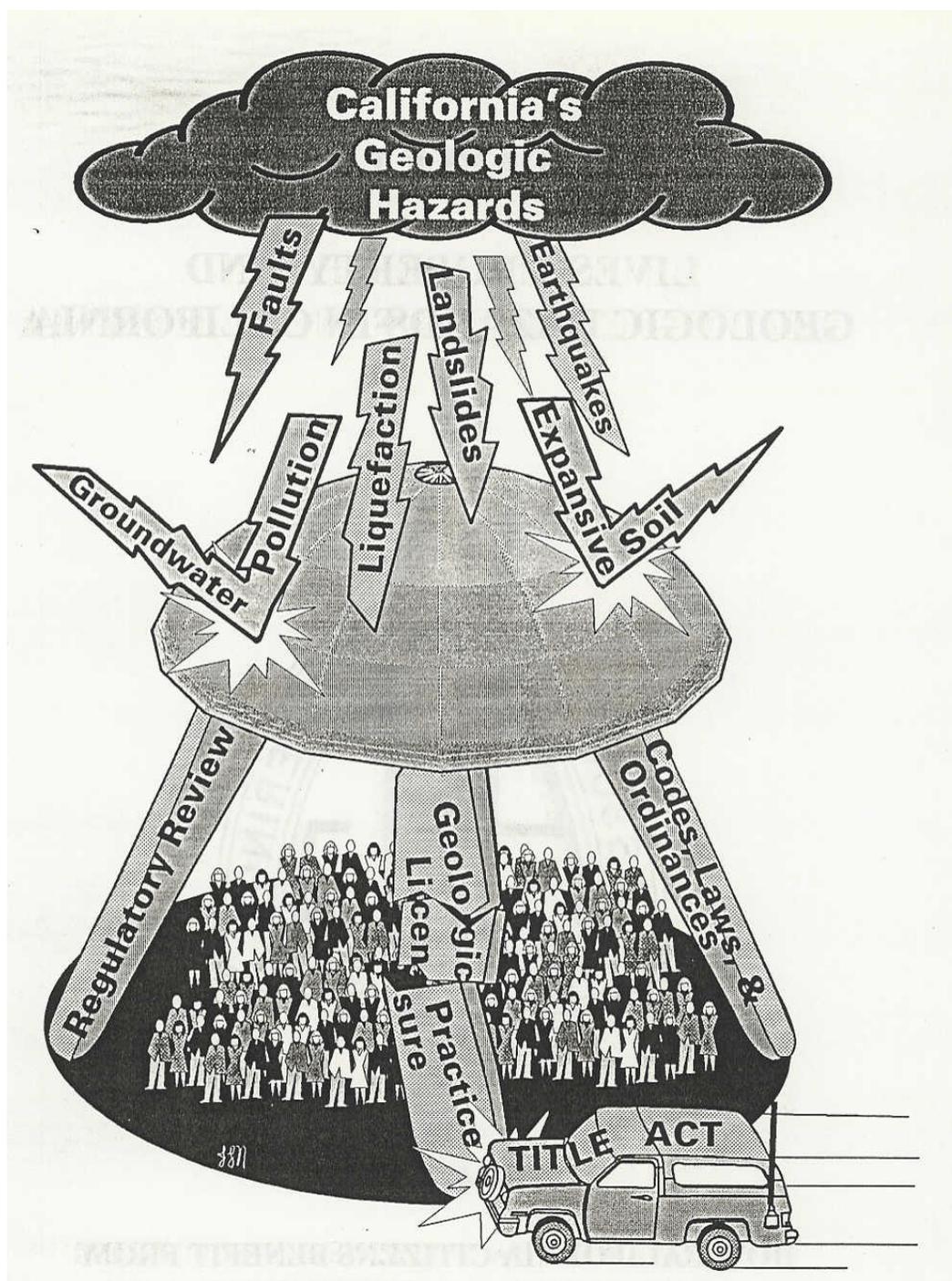


**AVOIDABLE LOSSES**  
**LIVES, PROPERTY, AND**  
**GEOLOGIC HAZARDS IN CALIFORNIA**



**ISSUE ANALYSIS:**  
**HOW CALIFORNIA CITIZENS BENEFIT FROM**  
**A GEOLOGY PRACTICE LICENSURE ACT**



**By Weakening geologic licensure the proposed title act will increase losses from geologic hazards**

# ISSUE ANALYSIS: HOW CALIFORNIA CITIZENS BENEFIT FROM A GEOLOGY PRACTICE LICENSURE ACT

## IMPACTS OF GEOLOGIC HAZARDS

Geologic hazards are a 2 billion-dollar-a-year problem in California.

The impacts of geologic hazards on Californians can not be reduced to zero. But they can be reduced significantly, and at modest net cost. This document tells how.

Geologic hazards can and do cause both traumatic loss of life and massive damage to property. Sometimes a fast-moving landslide (debris flow) wipes out a family or several members of a family.

Sometimes the damage is “only” property damage. Landslides and earthquakes can cause almost instantaneous massive damage to homes and apartments. Everybody understands that. But what about the slow, pernicious damage from expansive soils that damages thousands of California homes at a cost totalling millions of dollars every year? What about massive groundwater contamination plumes that devalue every property they creep under as they move to threaten public water supply wells.

## CONTROLLING THE IMPACTS OF GEOLOGIC HAZARDS

There are three basic ways to control and reduce the impacts of geologic hazards: 1) by codes, ordinances, and zoning; 2) by professional licensure; and 3) by regulatory peer review. Taken together in the right mix; these techniques will significantly reduce fatalities and property damage. Studies by the California Division of Mines and Geology show that the cost:benefit ratio is very favorable when all-three methods are properly implemented. No one method to reduce losses is the star of the show; it is an ensemble cast, with all players having important and mutually supportive roles.

### 1. Codes, Ordinances, Laws

Another way to protect the public from geologic hazards is through building and grading codes. These local codes control the standards of design and construction of buildings and earthwork. If the codes require appropriate geologic investigations prior to issuance of a grading or building permit, then the Building Official will receive a geologic report that describes the geologic conditions and hazards that impact the property and prescribes the design considerations and construction control that will be implemented by the responsible engineers and architects to mitigate the hazards.

Examples of geologic hazards or conditions usually analyzed are: groundwater resources and contamination, slope stability and landslides, expansive or collapsible soils, active faults, earthquake effects, on-site and nearby subsurface hazardous material sources, and offsite hazards such as earthquake sources and upslope debris flow hazards.

However, unless the code sets forth qualifications for the authors of the geologic report, *the report can be written by anyone unless there is a state statute controlling geologic*

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*practice.*

Building and grading codes are not the only source of legal requirements for geologic reports that are filed as public documents. State laws and regulations also call for such reports. Examples are the Alquist-Priolo Act which requires geologic reports for construction in active fault zones, and many regulations on groundwater quality and contamination studies.

### 2. License the practice of Geology

Controlling the practice of geology by setting forth statutory requirements for eligibility for independent practice before the public is one way to protect the public from the impacts of geologic hazards. This is professional practice licensure. Licensure requirements typically include practice and title restrictions that apply to about one-third of all practitioners in the field. (The other professionals in the field practice happily and legally --often for their entire careers, under exemptions to the practice act).

Licensure provides assurance that the licensed professionals have passed certain qualifications reviews and examinations. A licensure board can uphold practice standards and ethics, and can offer the public a multi-tiered system of redress through its disciplinary function.

### 3. Peer Review in the Regulatory Agencies.

Another step in protecting the public has been found to be highly desirable: peer review by a well-qualified independent reviewer who works for the regulatory agency, such as the building official. Realistically, the reviewer must be qualified by experience and licensure in the field covered by the report submitted to the regulatory agency. The reviewer need not be a permanent employee of the agency, but must be able to understand all of the science behind the submitted reports, as well as the practical implications of the reports and how they fit with the responsibilities of other design professionals.

### **What about Insurance, Bonding, and Tort Claims?**

Compensation for losses suffered from geologic hazards or events, it is commonly thought, can be obtained through tort litigation, insurance, or requiring performance or fidelity bonds of professionals. These activities often compensate poorly and incompletely. They are expensive and time consuming. They do not prevent a loss.

## CONCLUSION

Professional licensure for geologists is one of three important techniques that can and should be used in a coordinated way to protect the public and the taxpayers from the

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adverse consequences of geologic hazards.

### WHAT IS THE MOST EFFECTIVE FORM OF LICENSURE?

The goal is loss avoidance, or the prevention of harm to consumers and citizens. Is there one licensure method that is more effective than others?

Here is a key point: Geologic hazards impact not only the immediate client of the geologist, but many other downstream “clients.” The practice of geology, therefore, impacts many people BEYOND THE IMMEDIATE CLIENT in several senses. It impacts the client's family. It impacts the visitors to the client's home or business. It impacts the customers of the client's business. It impacts the neighbors, and it impacts the next purchaser of the property or the neighbor's properties. It impacts the mortgage holder on the client's property, and the mortgage holders on the neighbors properties. It impacts the banks or S&Ls that hold the mortgages. It impacts the local agencies that own, operate, and maintain the local infrastructure adjacent to the client's property. It impacts the members of the public who depend on that infrastructure. It impacts the taxpayers who fund the “deep pockets” public agencies that will be drawn into lawsuits involving geologic hazards on one parcel that moved onto public property.

What this means is: *a single, simple, geologic report prepared for the personal use of one client has impacts well beyond the decisions made by that one client. These impacts involve members of the public as individuals, and involve the public as embodied in taxpayer-supported agencies.*

Professional licensure laws come in two flavors: practice acts and title acts.

Practice acts control who practices regardless of what they call (title) themselves. Title acts control who can use the title but nearly all title acts only indirectly (and inefficiently) exert any control on *who* can practice.

A strong practice act will incorporate title protection features to close the door on scalawags who will play games with the completeness of the act.

Practice acts provide a framework to develop an orderly understanding of the risks being assumed by the consumers, the state, and the public. They do this by first declaring all practice (unless exempted) to be under the control of the act, and then creating specific exemptions. For each exemption, the risk can be estimated and accepted or rejected.

Title acts accept, without formal evaluation, all risks except those specifically named as requiring a state- certified professional's involvement. While this might seem to make a title act a mirror image of a practice act, the mirror is flawed by two major cracks: 1) implementation, and 2) private practice that evolves into public impact.

### IMPLEMENTATION PROBLEMS WITH TITLE ACTS

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In effect, title acts require that implementation be individually and separately achieved in each venue and for each purpose where implementation is possible if it is to be achieved at all. If such implementation is not achieved on a local basis, then protection of the public does not exist in that locality. There is no “global” (state-wide) implementation as there is with practice acts.

The two main drawbacks to title act implementation are:

1. it is always achieved at a far lower success rate than is desirable to meet the goal of protection of the public, and
2. because of the propensity of local officials for "fine-tuning," every implementation is a little different from that of the neighboring jurisdiction. This, of course, introduces considerable inefficiencies in practice as professionals strive to keep up with varying practice standards from one jurisdiction to another.

### **ADDITIONAL RISKS IMPOSED BY TITLE ACTS**

In theory, a title act can be written with restrictions that make it almost the equivalent of a practice act. This is seldom done. Some title acts control practice to a limited degree by requiring that any geological report submitted to a regulatory agency be prepared by a titled professional. While this is a positive step, there are many more steps to be taken.

Title acts typically do not control the private practice of the profession, even though that private practice might impact the public. It is not difficult to imagine how this flaw will result in public harm. Suppose a consumer is considering the purchase of one of three hillside lots for construction of a home. The consumer hires a “geologist” to provide a slope stability report on the three lots and make a recommendation as to which lot is the most stable. The report is a private report. Under a typical title act, it can be written by anyone who uses the title “geologist.”

The risk is the consumer's if the “geologist” is negligent, incompetent, or unqualified ... or is it? If the fake “geologist” misses a landslide and the home is built and later slides down the hill, who suffers? The consumer, of course. But who else? The neighbors (especially if their properties are involved in the landslide). The city and the public utilities, if the slide moves, as they usually do, onto city streets and disrupts utilities. The lenders: if the equity in the destroyed property is low enough they get the key in the mail and a notice of bankruptcy. The real estate agents lose sales for a few years as prospective buyers discover the geologic blight. Local property values are impacted. Owners will petition the County Assessor for a reduction in assessed value. Tax revenues will go down.

Title acts place risks on those who can least afford them. If a consumer makes a mistake and chooses a “geologist” instead of a true professional, as can happen under a title act, then the results of that consumer's mistake are visited upon innocent victims:

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neighbors and the next owner. Practice acts prevent that sort of mistake.

Professional geologists have the training and experience to define the risks from geologic hazards when they serve their clients. Professional geologists know that even the simplest geologic report, prepared for the private use of a client, can, and very likely will, have impacts on the public. Professional geologists are concerned about protecting the public from geologic hazards and believe that a practice act best serves the public interest in the long run.

### **MYTHS ABOUT PRACTICE ACTS**

1. They are a barrier to entry into the profession.

Not really. About two-thirds of all California geologists practice legally without licensure under exemptions in our practice act. The act allows them to enter the profession, call themselves geologists, and to practice as long as they want in any specialty. Practice restrictions come into play only if the geologist wants to have personal responsibility for directly serving the public. At that point the act provides a gateway: the licensure process.

2. They are anti-competitive.

Practice acts promote competition. Employers want to have highly qualified professionals on their staff to demonstrate to consumers the quality of their employees.

### **CONCLUSIONS ABOUT PRACTICE ACTS**

Practice acts are a rational, risk-based, approach to professional licensure. Through specific exemptions, practice acts allow the great majority of professionals to practice without being licensed. Practice acts are not perfect and they do not guarantee perfection in the performance of professionals licensed under them. They do, however, provide greater protection and more avenues of redress to members of the public and to the state and local governments than do title acts.

### **CONCLUSIONS ABOUT TITLE ACTS**

Title acts tend to place risks on those who can least afford them --the innocent consumers of professional services who unwittingly retain a non-professional to perform unregulated professional services. The errors of the non-professional can and often do harm more people and institutions than the original client and the client's lenders.

### **CONCLUSIONS ABOUT PROFESSIONAL LICENSURE FOR GEOLOGISTS**

## **ISSUE ANALYSIS: HOW CALIFORNIA CITIZENS BENEFIT FROM A GEOLOGY PRACTICE LICENSURE ACT**

Professional licensure for geologists is a viable and cost-effective method to reduce the annual \$2 billion impact of geologic hazards on California's citizens and economy. Licensure, to work well, must be supported by other loss reduction programs. Practice licensure reduces harm to consumers far more than title protection licensure. Practice licensure is a better loss-avoidance method than title licensure.

### **ATTACHMENT: ISSUE ANALYSIS MATRIX**

Attached is a matrix lists some little-understood facts about professional licensure for geologists in California ---and their implications. The matrix also lists many of the myths about professional licensure and provides commentary on those myths.

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ISSUE ANALYSIS: WHY KEEP PRACTICE PROTECTION FOR GEOLOGY AND GEOPHYSICS IN CALIFORNIA?

FACT

CONCLUSION

There are about 13,000 geologists and geophysicists in California, of whom about 4,400 are registered (licensed). About 700 candidates take licensure examinations every year (including specialty licenses and re-examinations).

About two-thirds of California geologists practice legally and successfully without a license because they are exempted by the practice act, either as subordinates or under the industry exemptions. The Act is not a barrier to entry into the profession nor to career advancement for these geologists.

As geology licensure is adopted in more and more states, practice protection is the overwhelming choice over title protection.

If California retrogrades to title protection, California geologists will become "second class citizens" when they compete in interstate commerce. Achieving "reciprocity" will be tough. Since 1992, eight states adopted geology licensure acts. Seven were practice acts and only one was a title act. Bills recently introduced or pending in seven additional states are all practice acts. One additional state is replacing title protection with practice protection.

In California consulting firms responsible for Registered Geologists usually have 3 – 5 unlicensed geologists working for them as direct reports. Unlicensed geologists are encouraged to take the licensure examinations, and in many companies they can study for the examination on company time.

It is a competitive advantage to employ highly qualified geologists. Licensure indicates competence to clientele, and therefore employers value it. Licensure promotes competition.

California has over 600 governmental entities that have responsibilities for mitigation of geologic hazards.

A state practice statute is the most efficient way to create uniform practice standards and responsibilities. A title act requires that each of the hundreds of locally enacted ordinances, laws, regulations, guidelines, and standards must reference a

## ASSERTION/ASSUMPTION

## ANAYLYSIS

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The practice of geology and geophysics does not impact the public health, safety, or welfare (or carry with it the potential for irreparable harm) to such a degree that practice protection is justified.

Geologic practice directly impacts the health, safety, and financial and emotional welfare of thousands of clients and their families every year, from “Mom and Pop” gas stations to big corporations. This is only the tip of the iceberg, because making one property safe from geologic hazards also protects the future owners and users, and the neighbors. Properly stopping a contaminant plume TODAY saves millions in future cleanup costs, preserves property values (and assessed values), and greatly reduces health hazards.

Implementation of geologic requirements for hillside lots in one city reduced landslide loss rates by 98.6 per cent, saving millions of dollars for homeowners and taxpayers. In 1992, 25 people died from landslides in nine-county San Francisco Bay area. With good practice enforced with the help of a practice protection act, this death rate can be reduced considerably. With the loopholes in the title act, the average landslide death rate will probably increase as more hillside development occurs with the “advice” of unqualified “geologists.”

There is not enough competition in the field.

In fact, layoffs abound and geologists are leaving the field. The membership of the American Association of Petroleum Geologists dropped from about 50,000 to 35,000 in recent years. Consulting firm fee schedules have increased at less than the inflation rate in recent years.

Under a title act professional associations will lobby local agencies and state authorities to require state-certified geologist sign-offs through local ordinances and state regulations. This will implement a satisfactory level of practice protection.

In the geosciences, professional associations are operated by volunteers on a very limited budget. The Associations are too small and ineffective to bring about this type of title act implementation. Passing and administering scores to hundreds of local ordinances to administer a title act in this way is expensive, inefficient, and will result in inconsistencies in practice standards from one jurisdiction to another.

Title protection will enhance competition by opening up the restrictions of practice protection.

Exemptions in the present practice act already allow about 2/3 of geologists to practice legally without being licensed. Modern practice acts are designed to offer even broader exemptions. Opening up the remaining practice areas, which deal specifically with critical public health and safety issues, opens these areas to fraudulent, negligent, and incompetent practice.

## ASSERTION/ASSUMPTION

## ANAYLYSIS

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Most Consumers of geologic services are sophisticated and do not need the level of protection offered by a practice act.

Nearly all small business owners and homeowners are completely in the dark about what professional geologists do and how to determine or evaluate a scope of work. To large industrial and land development corporations, geologic services are an expense, not a profit center, and the sophistication lies in contract negotiation, not geologic expertise.

If unregulated practice is allowed, the public will learn to choose the level of expertise they need.

At what cost? Most homeowners use geologic services once in their lives – when they buy a hillside lot or home (landslide potential) or when they want to build in an active fault zone. Poor advice from an unregulated “geologist” can cost them their lives or bank account, and cause damages in the millions of dollars on neighboring properties, including public facilities. A practice act starts the consumer out high on the learning curve. A title act puts the consumer at the bottom of the learning curve.

The licensure process and the examination are major barriers to entry into the profession.

*Wrong. Anyone can enter the profession and call themselves a geologist under the existing practice act, provided only that they work in an exempt category of practice. About 2/3 of all geologists do not need licensure and have fine careers without being licensed. Rather than being a barrier to entry, the examination is the gateway to the assumption of a substantial increase in responsibility to the public for those geologists who want to practice independently before the public, i.e., to offer their services directly to the public as consultant in responsible charge of geologic work practiced under the purview of the public interest.*

Protection of the title “certified geologist” will give the public a clear choice in choosing geologic services. The public will know that they are dealing either with a certified geologist, certified by the state, or with an uncertified geologist of unknown qualifications.

The distinction will not be at all clear. At least ten professional geologic, soils, and hydrologic associations offer their own private certifications to their dues-paying members. These private certifications will be very easily confused with state certification.

## ASSERTION/ASSUMPTION

## ANAYLYSIS

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Practice protection is anti-competitive.

With the exemptions in the present practice act, job competition is entirely free for about 2/3 of all geologists (even for those who have no geologic training and call themselves geologists). The present practice act permits *entry* into the critical public-safety related parts of the practice *without restriction or examination* other than supervision by a licensee. The present practice does control *advancement* to independent practice in the critical public-safety related parts of the profession. Due to intense competition, geologists are leaving that part of the profession, too.

Government agencies are the biggest consumer of geologic services and are sophisticated enough that they do not need practice protection.

Government agencies are not the biggest consumer of geologic services; small private enterprises and individual homeowners comprise the bulk of the client load. We in the profession find that government agencies, business, and homeowners alike are all quite unsophisticated about the type and scope of geologic services needed to protect their interests and meet the demands of public reviewers, laws, and codes. Even clients such as major land developers who routinely utilize geologic services rely heavily on the advice of their geologic consultants.

Under title protection, there is no need for the Board to have disciplinary authority over unlicensed geologists. If consumers suffer losses from fraudulent, negligent, or incompetent practice by unlicensed geologists, civil courts will offer adequate means of redress.

Most cases will be too big for small claims court and too small and problematic to be of interest to an attorney. A practice act with a strong "cite and fine" authority can be used to discipline both licensed and unlicensed practitioners efficiently and effectively. In the experience of other states, title protection does not perform as promised and often leaves consumers stranded when they have complaints.

The pass rates on the examinations are too low.

The pass rates are generally comparable to many other professional examination pass rates. Reasons the pass rates are not higher include: 1) candidates do not prepare well, especially the first time; 2) candidates with marginal background are allowed to take the examinations; 3) depth and breadth of geologic curricula are decreasing in many schools.

The Act does not encourage competition.

The Act has the following pro-competitive features: 1) no residency requirement for candidates; 2) no minimum age for candidates; 3) a broad industry exemption; 4) no requirement for outside accreditation of colleges; 5) no requirement for a college degree.