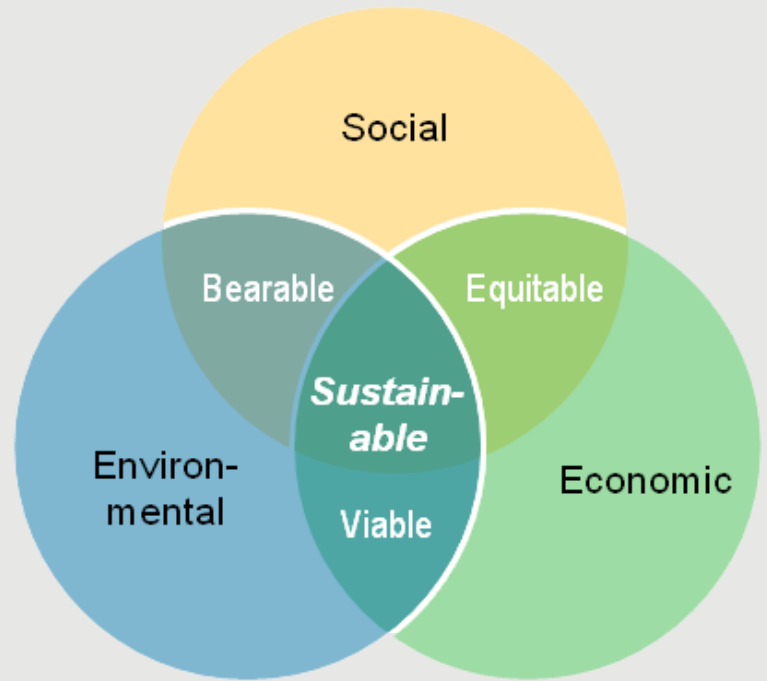


# Sustainability Evaluation and Report



**SHN Engineers & Geologists**  
Offices in Eureka, Redding, and  
Willits, California, and Coos Bay and  
Klamath Falls, Oregon.

October 2015



# SHN

Engineers & Geologists

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## Letter from the Chief Executive Officer

At SHN Engineers & Geologists, our mission and vision statements announce the things that matter to us: enhancing our communities, creating rewarding environments for our employees and shareholders, being the firm of choice in northern California and southern Oregon, and delivering professional solutions to our clients' engineering and geologic problems. We are a small business enterprise with fewer than 85 employees, with offices in five locations, Eureka, Redding, and Willits, California; and Coos Bay and Klamath Falls, Oregon. Our business incorporated in 1979, and we are beginning our 36<sup>th</sup> year.

This Sustainability Report is the first for SHN, and I am gratified to learn that many of our "tried and true" business operations are considered sustainable actions. By being fiscally conservative, we have weathered the economic downturns following the "Black Monday" stock market crash of 1987, and the Great Recession of 2007-2008. By encouraging employees to branch out into new services, we have also been able to evolve with the changing local economy, as it went from primarily resource based, to a more diversified mix of professional services, education, energy, aquaculture, and small businesses.

Certainly we can improve in the environmental aspects of sustainability, and the California drought and the Governor's Executive Order for a 25% water use reduction will likely compel us to do so. This sustainability report provides us with some benchmarks for water and energy use, and waste management and reduction.

The "triple bottom line" refers to a management approach that uses three categories to measure business success: the financial bottom line (at the bottom of the Profit and Loss sheet), the environmental bottom line (which measures water, waste, and energy balances), and the social bottom line (which considers our relationships between management, staff, clients, suppliers, regulatory agencies, and communities). One example of the triple bottom line is the link between employee retention and recruitment (financial aspect), employee work/life balance (social aspect), and air emissions from commuting (environmental aspect). This report finds that consideration of a work at home policy is desired by about a third of employees. There are numerous liability and operational issues to working at home, which would need to be explored by our Executive Leadership Team. However, other recommendations are more easily addressed, such as reminding employees and supervisors to review company policies on flexible work schedules, and to fully communicate expectations on billable and non-billable hours.

A recent polling of employees found that over half are active in numerous and varied community service, professional, youth oriented, environmental, educational, and public safety organizations. SHN's culture of community involvement and professional excellence is the driver behind our longevity and sustainability, and we are committed to continuing our efforts.



K. Jeff Nelson, P.E.  
Chief Executive Officer  
October 2015

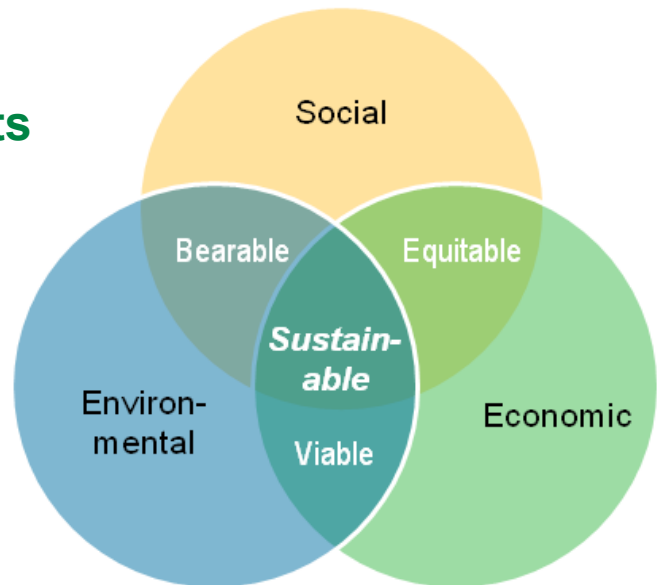
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# A Sustainability Report for SHN Engineers & Geologists

September 2015



Company sustainability is measured by the strength of its social, environmental, and economic foundations. When all three are connected and strong, a sustainable company enjoys longevity and success.

## Table of Contents

The Business Case for Sustainability Reporting .....	1
SHN Company Overview .....	2
Sustainability Evaluation Methods .....	3
Sustainability Evaluation Results .....	4
Economic Aspects .....	4
Environmental Aspects .....	4
Environmental Services Provided by SHN .....	7
Social Aspects .....	8
SHN's Sustainability Recommendations .....	10
Recommendations that are Existing Actions .....	10
Criteria for Recommendations' Feasibility .....	10
Environmental Recommendations .....	10
Social Recommendations .....	11
SHN Meets Sustainable Company Criteria .....	11
Conclusion and GRI Recommendations .....	12
References .....	13

## The Business Case for Sustainability Reporting

A sustainability report is a document that describes a company's journey on its "triple bottom line" (TBL) path. TBL refers to a company's goals for three things, 1) its financial bottom line, 2) its people, which includes its employees, shareholders, clients, regulating governmental agencies, and community at large, and 3) its environment, which the company impacts both positively and negatively. This TBL concept is also known as the "3P" business management approach, referring to a company's profits, people, and planet. In 2012, Ernst & Young conducted a survey of 282 environmental strategy executives from 17 sectors, employed by companies generating revenues of \$1 billion or more. They found that 62% of those companies publicly report environmental and social goals, and 59% actively measure progress towards those goals (Ernst & Young and GreenBiz, 2013). However, given its limited resources, how can a small business perform similar sustainability evaluations? How can a small company justify the expense to shareholders and employees?

The business case for evaluating small business sustainability is that such an evaluation:

- Identifies risks that threaten a company's sustainability.
- Focuses management on employee motivation, retention, and recruitment.
- Defines the company's vision and strategy in sustainability as company longevity, and finds metrics to use as goals.
- Identifies the company to like-minded clients, organizations, and the community.
- Identifies how small companies can make steady change over time.

**"SHN is among the best, and that is why we continue to engage the firm for our needs."**

*Frank Shaw Bacik, President, General Counsel,  
Town of Scotia Company, LLC*



Racks for a solar panel array at Fort Bragg High School, Fort Bragg, CA.





## SHN Company Overview

SHN Engineers & Geologists (SHN) provides engineering, geologic, and related services to communities in Northern California and Southern Oregon. The largest of its three California offices is in Eureka, with others in Redding and Willits. The fourth and fifth offices are in Coos Bay and Klamath Falls, Oregon. SHN's service areas are:

- Civil engineering
- Geosciences
- Environmental services
- Surveying
- Permitting and planning
- Special inspections and materials testing
- Biological sciences

SHN has weathered financial and natural disasters over its 36 years in business, including 1987's "Black Monday" stock market crash, the 1992 Cape Mendocino earthquakes, the 2008 Great Recession, and the regional economic shift from primarily resource based, to a more diversified mix of professional services, education, energy, government, and small

businesses. Being receptive to new ideas, its senior management allowed a sustainability evaluation and report to be written.

SHN's most recent Strategic Plan (2012) states the company's Vision Statement and Mission Statement, which are reproduced here.

**Vision Statement:** SHN will be the firm of choice in Northern California and Southern Oregon. Through our actions, we enhance our communities and create a rewarding environment for our employees and shareholders.

**Mission Statement:** SHN delivers comprehensive and creative professional solutions to meet engineering, geologic and related client needs.

## Sustainability Evaluation Methods

Existing company data, handbooks, and policies were gathered and reviewed. Key staff and managers were interviewed. The literature was reviewed to locate benchmarks and goals for the financial, environmental, and social aspects of similar businesses. The Global Reporting Institute's (GRI) guidelines for writing sustainability reports were followed. Similar to the financial accounting concept of "materiality," the scope for SHN's sustainability report encompasses economic, environmental, and social aspects, but limits its coverage in some aspects of each category, based on what is material to SHN (Table 1).

Wastewater treatment via a natural pond system in McKinleyville, CA



**Table 1. Material Categories and Aspects for SHN**

Three Categories of Sustainability Reporting		
Economic Aspects	Environmental Aspects	Social Aspects
Trends affecting all US businesses	Energy consumption	Types of employment
Environmental trends	Waste generation and reduction (recycling)	Health and safety for employees
General overview of financial position and economic performance	Water usage	Training and education
Economic services provided to stakeholders	Air emissions	Equal remuneration based on gender, nondiscrimination
	Materials consumed	Forced or compulsory labor
	Environmental services provided to stakeholders	Employee assessment
		Product/service safety for clients and communities
		Social services provided to stakeholders



## Sustainability Evaluation Results

### Economic Aspects

Under the economic aspects, external conditions affecting SHN’s economy were evaluated. Global drivers include a talent shortage as Baby Boomers retire, and global climate change, which will increase the costs of doing business, but will also create opportunities. In the U.S., aging infrastructure is an external condition directly affecting consulting engineering firms. SHN’s economic impacts on its communities include bringing “out of the area” money into its offices’ communities, and of course, providing employment.

SHN’s CEO gives the employees an annual “state of the company” presentation. In the meeting, he provides news and a financial update of the company. Financial data is also provided monthly to a management group called the Executive Leadership Team (ELT) who disseminate this information and analysis with company staff. Financial data in this section is largely from the 2015 presentation, which reports on 2014.

The company’s cash flow is very good, and debt is very low; nothing is owed on the company’s line of credit, and the main long term debt is held by former shareholders.

SHN uses benchmarks published by PSMJ Resources, Inc., a consulting firm that surveys, collates, and publishes business performance statistics for architectural, engineering, and construction firms. However, SHN recognizes that PSMJ’s benchmarks are based primarily on large firms in urban areas, and do not fully represent conditions in rural northern California and southern Oregon. The financial benchmarks do provide goals and a frame of reference though.

In 2013-2014, PSMJ’s annual survey included 198 firms. SHN’s financial statistics are not provided here, but how the company compares with PSMJ’s 2013 survey was evaluated (Table 2).

Risk management continues to be a theme affecting all business and project decisions. Use of standard and improved contract language is one way the company is improving its risk exposure.

**Table 2. SHN’s 2013 financial performance in context of PSMJ’s 2013 survey (PSMJ, 2013).**

Benchmark statistic	SHN performance in context of PSMJ 2013 benchmarks of 198 firms
Net revenues per Full Time Equivalent (FTE)	3.3% less than the PSMJ median
Staff size change (computed from 2008 to 2014, which includes 2008-2009 recession)	Within the 10 <sup>th</sup> and 25 <sup>th</sup> percentile
Profit/FTE	Within the 50 <sup>th</sup> to 75 <sup>th</sup> percentile
Operating profit	Within 10 <sup>th</sup> to 25 <sup>th</sup> percentile
Days in process	Within the 10 <sup>th</sup> to 25 <sup>th</sup> percentile
Pro forma profit for 2015	Within 25 <sup>th</sup> to 50 <sup>th</sup> percentile

## Environmental Aspects

Energy consumption, waste generation and recycling, water use, and air emissions, were evaluated under the environmental aspects of SHN’s sustainability report. SHN provides environmental services and benefits directly to its clients and communities through the projects they design and construct, for example, water treatment plants, safe roads and bridges, and remediated industrial sites.

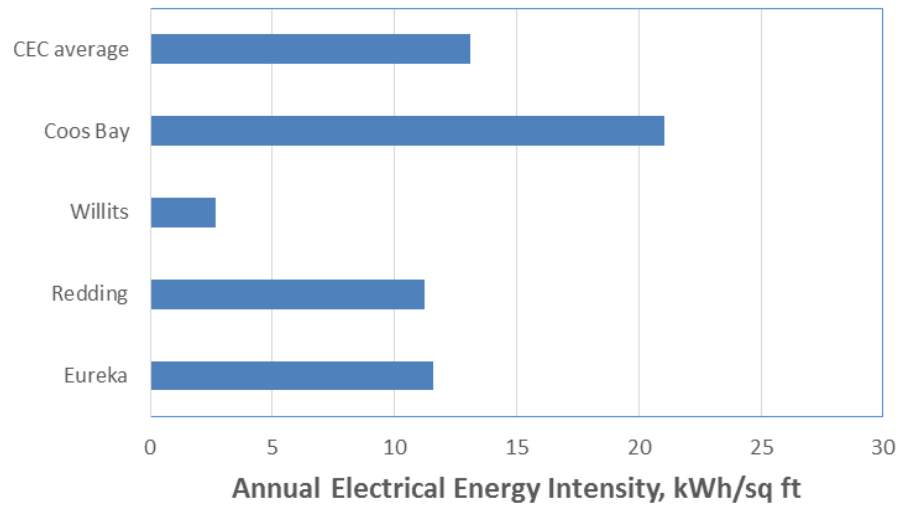


Figure 1. Based on annual electrical energy intensity, SHN’s Coos Bay office uses more electricity than offices of similar size, as reported by the California Energy Commission (2006). Information for the Klamath Falls office was unavailable.

**Energy usages** at the four offices were compared against a statewide average estimated by the California Energy Commission (Figures 1 and 2). The fifth office in Klamath Falls, Oregon, was not evaluated because it is so small.

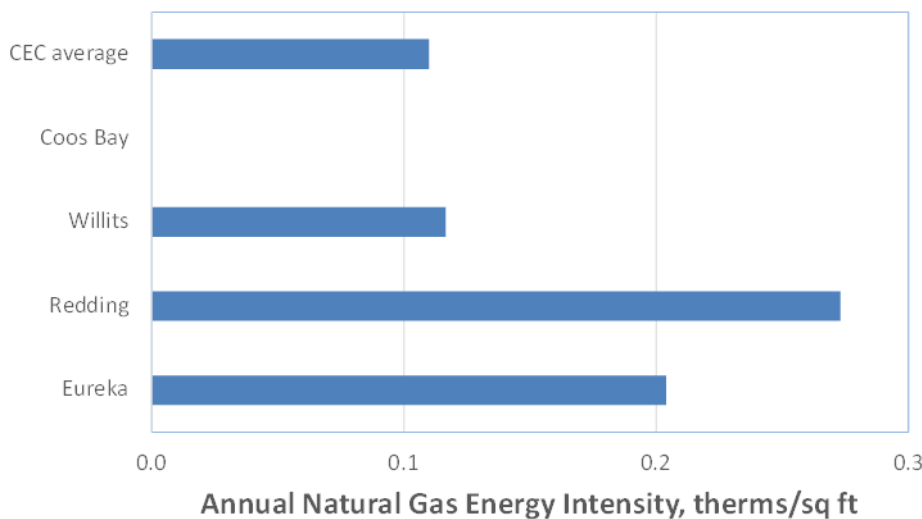


Figure 2. Based on annual natural gas energy intensity, SHN’s Redding and Eureka offices use more natural gas than offices of similar size, as reported by the California Energy Commission (2006). However, the Redding office’s use is estimated from usage of the entire building and natural gas is used for air conditioning. The Eureka office’s use include the materials lab.

The Coos Bay office does not use natural gas. Information for the Klamath Falls office was unavailable.

**Table 3. Estimated air emissions from employees' commuting**

	All employees drive 5 days/wk for 50 weeks	All employees drive 4 days/wk for 50 weeks	Work at home policy with 38% driving 4 days/week
Gasoline used, gal per year	27,176	21,741	25,111
Carbon emissions in CO2 equivalents, metric tons	242	193	223
Number of homes using equivalent energy per year	22	18	20
Acres of forest needed to sequester equal amount per year	198	158	183

**Non-hazardous and hazardous solid waste** is generated at project sites during hazardous materials investigations. Waste is generated as staff follow specific and industry-approved standard procedures for this type of work. For example, to collect potentially hazardous soil samples, engineers will use:

- plastic gloves to prevent contamination and cross contamination from sample to sample
- bottled distilled water to clean and rinse sample containers and collection tools
- re-sealable plastic bags to further protect and identify sample containers
- depending on toxicity and classification of possible contaminants, disposable plastic (Tyvek) suits, boot covers, and respirator cartridges
- large plastic garbage bags to contain the generated waste

Similarly, the materials laboratory generates solid waste from following specific and industry-approved standard methods. For example, concrete cylinders are tested to ensure adequate strength, but the plastic forms that keep the cylinders uniform are disposed, as are the concrete cylinders.

To vary from standard methods in order to reduce solid waste would invalidate samples and the data obtained from them.

To estimate **air emissions** due to commuting, an online and anonymous survey was conducted. SHN employees were asked how they travel to work, how many miles they drove if by personal vehicle, their cars' mileages, and whether they could work at home one day per week. A majority (55 of 85) of employees responded to the online survey.

Almost all employees (95%) drive personal vehicles to work; two people take the bus and one rides a bicycle. The median fuel consumption for all employees is 23 miles per gallon (mpg), and the total estimated gasoline used for employees' round trips, 5 days per week, at 50 weeks per year, is 27,176 gallons per year. The portion of employees who stated they could work at home one day per week is 38%, although some interpreted the question as could they do parts of their job at home; they answered yes, not considering that to save a trip, they have to spend the entire day at home. These interpretations were made clear by survey comments.

Given the survey results and converting gallons of gasoline used to CO2 equivalents using an online emissions calculator (US EPA, 2014), air emissions due to commuting were estimated (Table 3).

## Environmental Services Provided by SHN

SHN's stakeholders are its employees, shareholders, clients, regulatory agencies, partners, and community. SHN provides environmental services directly to its clients and community in many ways, including:

- The civil engineering group provides environmental services by providing clean drinking water, treating public wastewater through design of modern treatment systems, designing safe roadways and pedestrian paths, saving energy through designing more efficient pipe routes and buildings, and designing safe and earthquake resistant schools, hospitals, and other public and private structures.
- The environmental group provides environmental services by remediating old industrial sites, cleaning up contaminated groundwater, minimizing and even eliminating polluted storm water runoff, designing fish passage, and decreasing risks of hazardous materials discharges to water, air, and land.
- The geosciences group identifies potential land slide and seismic areas that could prove environmentally disastrous should they be developed inappropriately. They also remediate and stabilize land masses that would otherwise add sediment to streams and rivers, and that would threaten infrastructure (roads and utilities) and structures.
- The planning and permitting group analyzes projects to determine their potential environmental impact, provides assessments, and creates alternatives for reduced environmental impacts.



A low impact development rain garden, Trinidad Rancheria, CA

Wastewater treatment ponds for the City of Blue Lake, CA





### Social Aspects

Social aspects of the company were described by types of employment, company diversity, and other policies and data that indicate the company’s culture. One notable company characteristic is its commitment to community service, on the part of employees as individuals, and as supported by the company. Numerous employees are board members or officers of organizations such as:

- Chambers of Commerce
- Professional organizations
- Hospitals
- Universities or colleges
- School districts
- Water and community services districts
- Service organizations, for example, Big Brothers and Big Sisters, Rotary International, and the Northern California Community Blood Bank (Figure 3).



SHN at Saint Bernard’s High School Career Night

Students and interns gained experience in eel grass surveys conducted on Humboldt Bay, CA., led by SHN.

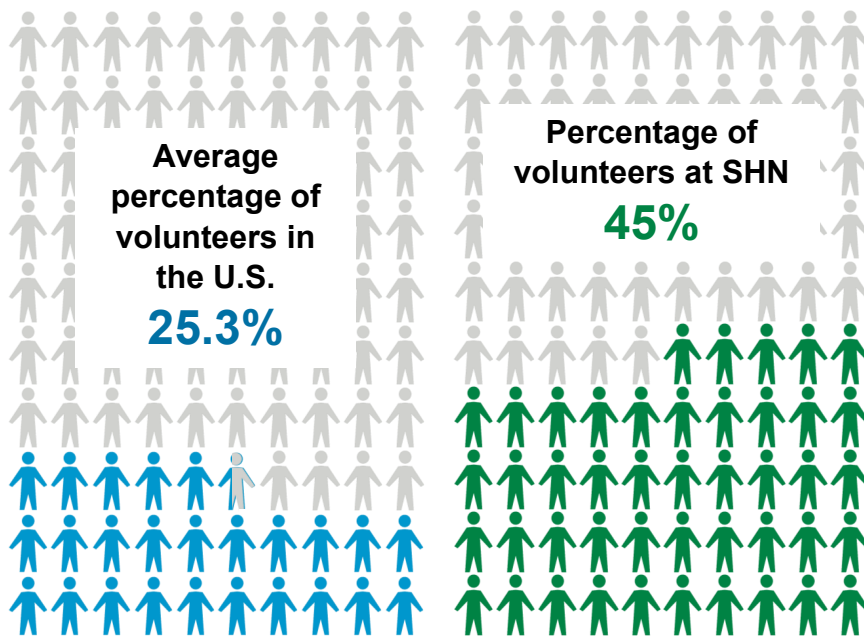
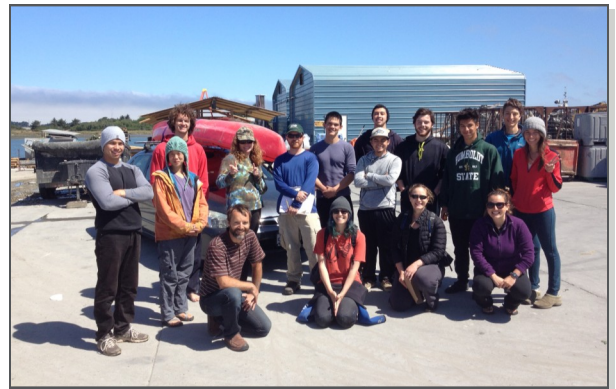


Figure 3. “Volunteers are defined as persons who did unpaid work (except for expenses) through or for an organization” (U.S. Bureau of Labor Statistics, 2015).



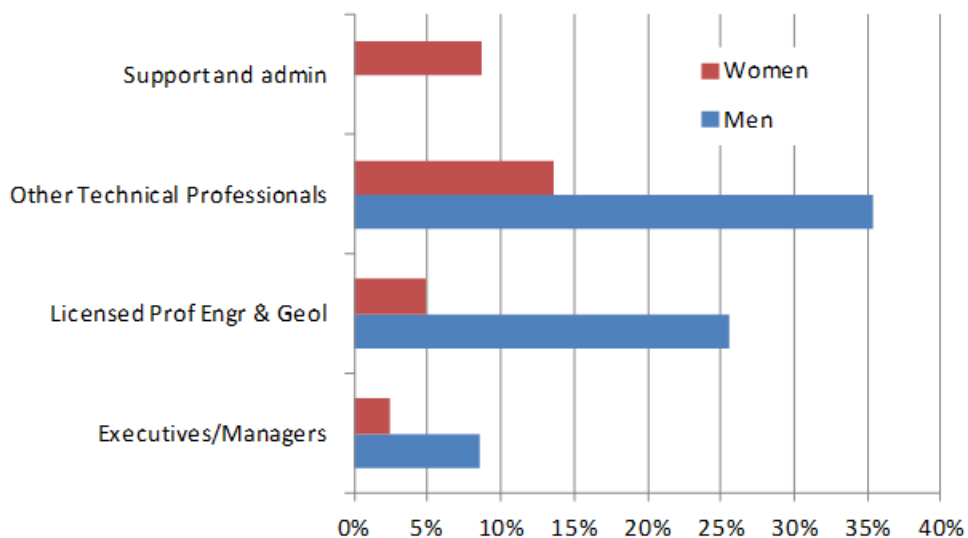


Figure 4. In 2012, 14% of engineers were women, according to a Congressional Joint Economic Committee (Crawford, 2012). At SHN, 19% of licensed professional engineers and geologists are women.

In a small company, descriptions of gender, race, job description, and pay are likely to infringe on an employee’s privacy. In 2012, 14% of U.S. engineers were women, according to a Congressional Joint Economic Committee (Crawford, 2012). As of May 2015, 19% of SHN’s licensed and professional engineers and geologists are women (Figure 4). One woman is currently in upper management at SHN, and two others are project managers. Two women have been in senior management in the past but are no longer with the company. As of May 2015, two Asian-American women are engineers, and one Latina is an environmental technician.



Collecting a water sample from creek contaminated by acid mine drainage.

## SHN's Sustainability Recommendations

Nineteen recommendations were generated during the evaluation stage of the sustainability report. Six recommendations are actions that SHN already performs, and the remaining 13 are actions that SHN's Executive Leadership Team can consider.

### Recommendations that are Existing Actions

Six recommendations begin "Continue..." indicating that SHN is already acting sustainably in those areas. These six recommendations are to continue:

- Strategic planning and scanning for trends that could be opportunities for the company and community.
- Financial management that has been leading to profit.
- Core business of civil engineering, geosciences, and environmental services, and evaluate applicability of Envision certification to SHN's primary service areas.
- Policies and practices for identifying non-exempt and exempt employees.
- Existing health and safety programs, and consider whether the Company Safety Officer needs assistance.
- Support for employee licensing and certifications, and continue analyzing risks of projects that the company designs, implements, or constructs.

Friends of the Dunes Interpretive Center, Manila, CA



### Criteria for Recommendations' Feasibility

The remaining thirteen recommendations vary in the degree to which they require:

1. Financial resources from company profit
2. Specialized knowledge to accomplish
3. Time to accomplish
4. Immediate attention for best and clear return

No new financial recommendations were identified.

The environmental and social recommendations were ranked considering the four criteria above; in order of most feasible first, they are listed below.

### Environmental Recommendations

- Present carpet tile alternative to Eureka building owner while negotiating carpet replacement.
- Further document energy uses of the Coos Bay and Redding offices, and investigate whether other building tenants are likely to use more energy than that consumed for office work.
- Discuss concerns with local computer business to see if alternatives are available that perform as well as their preferred brand.
- As the California drought worsens and as water rates increase, water use in all offices should be more clearly known; conduct further study of water usage.
- Propose offering this sustainability reporting as a service to new and existing clients to the senior management and Executive Leadership Team.

## Environmental Recommendations (continued)

- Although testing lab concrete and soil recycling has been investigated in the past, consider reviewing its feasibility, given increased waste management fees.
- Consider purchasing carbon credits from the Arcata Community Forest Barnum Tract to offset all or part of commuting emissions.
- Partner with universities and regulatory agencies to identify ways to reduce waste generated during sample collection and testing.

## Social recommendations

- Remind or direct employees to the server location where all staff policies are saved, so that they are responsible for knowing what the policies are, as well as their supervisors.
- Consider reminding supervisors and managers to discuss perceptions of required non-billed labor with employees, and reminding employees to reflect on the nature of any non-billed labor.
- Consider whether an internally known employee review metric would motivate managers to perform the reviews, or would only add stress to reasons why timely reviews are not occurring.
- Monitor gender and race distribution in science, technology, engineering and math (STEM) college majors and within the engineering industry, and periodically compare college, company, and industry statistics. If comparisons indicate that women and minorities are significantly under-represented at SHN, prepare recruiting plans that address how representation could be increased.
- Consider investigating whether a work at home policy is desirable, given new communication technologies, and work at home policies of other companies.

### **SHN Meets Sustainable Company Criteria**

In general, SHN meets four sustainable company criteria frequently cited in the literature, which are 1) sensitivity to change, 2) a well formed company culture and identity, 3) tolerance and decentralization of decision making, and 4) conservative financing.

It is sensitive to environmental changes, and responds to changes by adapting as well as possible. An example of this characteristic is its responses to loss of resource industry clients, as that industry has slowly divested itself from SHN's region. SHN has also recognized that it can improve and adapt to an environment of greater competition from larger corporations.

SHN's company identity and culture is being refocused during new branding efforts that were advised during its strategic planning. SHN's tolerance and decentralization are exemplified by its sponsoring of new professional directions, such as trenchless technologies or this sustainability report. Finally, its conservative financing (limited long term debt) has given it freedom to plan over long time periods.

## Conclusion and GRI Recommendations

SHN has a history of operating as a sustainable company, as supported by its 36 years of operation, and by already implementing 6 of 19 sustainability recommendations that were identified in this report. The recession of 2008 changed its business environment, and it is evolving and strategically planning how to best meet increased competition from larger and out-of-the-area companies. The remaining 13 recommendations were ranked to allow implementation slowly and steadily. In addition, the GRI recommends the following for all small businesses:

- Continue measurement of key indicators. In SHN's case, they could be financial indicators, the employee assessment and review metric, and energy used and waste generated measurements.
- Plan to revise the sustainability report in a defined number of years; decide on a reporting period and schedule.
- Obtain external validation of the sustainability report through local, state, global entities or through non-profit organizations.
- Designate a contact person for sustainability issues.
- Engage additional external stakeholders in future follow ups to the initial sustainability report.

After these recommendations are discussed by SHN's Executive Leadership Team, an implementation plan should be written that includes a schedule and measurable goals to benchmark its achievement as a sustainable company.



Surveying (top) and coho salmon in unnamed creek (bottom), Humboldt County, CA..





## References

- California Energy Commission. (2006). California commercial end-use survey. March 2006. CEC-400-2006-005. Retrieved on March 13, 2015 from <http://www.energy.ca.gov/2006publications/CEC-400-2006-005/CEC-400-2006-005.PDF>
- Crawford, M. (2012). Engineering still needs more women. September 2012. Retrieved May 26, 2015. <https://www.asme.org/career-education/articles/undergraduate-students/engineering-still-needs-more-women>
- Ernst & Young and GreenBiz (2013). 2013 six growing trends in corporate sustainability. Retrieved March 1, 2015, from [http://www.ey.com/Publication/vwLUAssets/Six\\_growing\\_trends\\_in\\_corporate\\_sustainability\\_2013/\\$FILE/Six\\_growing\\_trends\\_in\\_corporate\\_sustainability\\_2013.pdf](http://www.ey.com/Publication/vwLUAssets/Six_growing_trends_in_corporate_sustainability_2013/$FILE/Six_growing_trends_in_corporate_sustainability_2013.pdf)
- PSMJ. (2013). The leader's dashboard of key benchmarks. Retrieved April 25, 2015 from <http://www.psmj.com/documents/LeaderDashboardPSMJ.pdf>
- US Department of Labor. (2008). Fact Sheet #17A: Exemption for executive, administrative, professional, computer & outside sales employees under the Fair Labor Standards Act (FLSA). July 2008. Retrieved March 14, 2015 from [http://www.dol.gov/whd/regs/compliance/fairpay/fs17a\\_overview.pdf](http://www.dol.gov/whd/regs/compliance/fairpay/fs17a_overview.pdf)
- US EPA. (2014). Greenhouse has equivalences calculator. April 16, 2014. Retrieved March 28, 2015 from <http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results>





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