

leadership summit²⁰⁰⁹



Triple Bottom Line: Applied Sustainability

David S. Schmid

Outline

- What is sustainability
- Triple Bottom Line
- Applied sustainability
- Breakout
- Resources





Sustainability

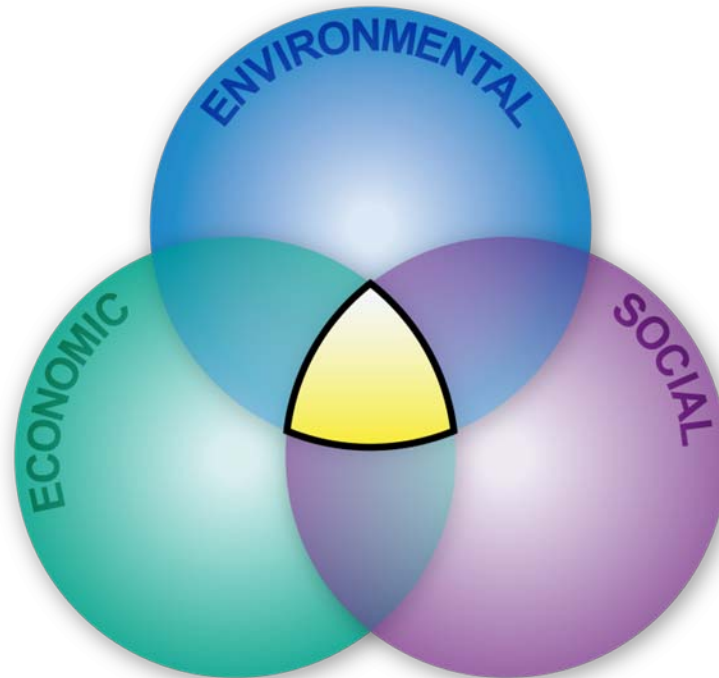
Sustainability is...



"...development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The Brundtland Commission, *Our Common Future* (1987)

Sustainability



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"...development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

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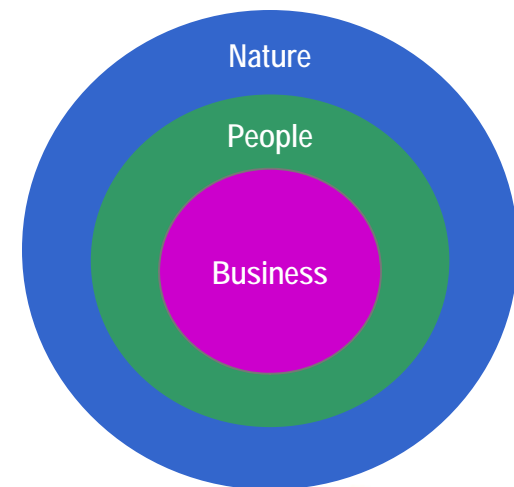


Triple Bottom Line: Applied Sustainability

Sustainable Solutions & TBL

Sustainable solutions create client value and innovation from economically viable, environmentally sensitive, and socially responsible approaches:

- Reduce life cycle costs
 - Reduce energy, water and material consumption
 - Reduce waste in all forms, including emissions and heat
- Favor systems-oriented problem-solving
- Engage clients and stakeholders
- Apply principles to planning, design, construction and operations



How do we get there?

- Sustainability
 - Art vs. Measurement
- Triple Bottom Line
 - Business Model vs. External Stakeholders
- How do you operate?
 - Project delivery
 - Employee relations
 - Community involvement



Measuring sustainability

CH2M HILL Sustainability Assessment Framework (SAF)		
ENVIRONMENTAL	ECONOMIC	SOCIAL
Energy	Cost	Equity
Climate Change	Return on Investment	Aesthetics
Transportation/Land Management	Liabilities	Justice
Water	Assets	Health and Safety
Materials Use/Waste	Economic Development	
Biodiversity/Habitat	Life Cycle	

Sustainability Assessment Framework

Domain	Category	Project SAF Metrics	
		Sub-Category	Units
Environment	Biodiversity/Habitat	Minimize soil and habitat disturbance	acres
		Surface water and wetlands impact	acres
	Climate Change	Tons of GHG generated	tons
		Tons of VOCs generated	tons
	Energy	Gallons of diesel consumed	gallons
		KWh of energy consumed	Kwh
	Transp/Land Mgmt	Acres of land required for roads and buildings	acres
Material Use/Waste	Solid waste sent to local landfill	cubic yards	
Social	Water	Additional groundwater degraded above MCLs	Million Gallons
		Wastewater generation	Million Gallons
	Equity	Community sustainability stewardship	subjective
		Regulatory sustainability stewardship	subjective
H&S	Long term human health impact	ILCR	
	Operational impacts	# traffic fatality	
	Occupational hazards	# injuries	
Economic	Economic Development	Sulfur oxide gas to atmosphere	tons
		Full-time jobs created in community	Job Years

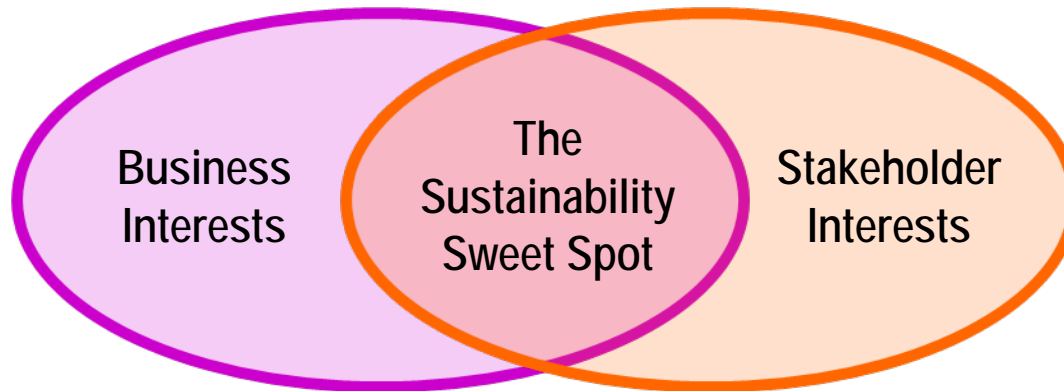


Minimization and optimization

- Look for processes and procedures that generate waste
- Look for areas of stakeholder conflict
- Benchmark your company against others

Business Function	Minimization	Optimization
Worker H&S	Reduce workplace accidents	Create healthy and happy workforce
Material Usage	Reduce chemical use	Use waste as a feedstock for other products
Energy use	Reduce fossil fuel use	Increase efficiency

The Sustainability Sweet Spot

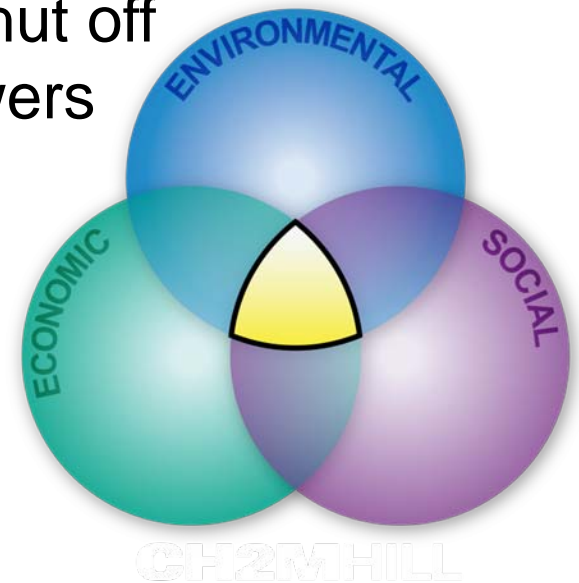


New products and services
New processes
New markets
New business models
New methods of management
New methods of reporting

From *The Triple Bottom Line: How Today's Best-Run Companies are Achieving Economic, Social, and Environmental Success – And How You Can Too* by Andre W. Savitz (2006). Reprinted with the permission of Jossey-Bass (Pub.) 4

Heinz Industrial WWTP

- Production uses 26.4 Megawatt/day
- No production, 19.8 Megawatt/day
- Bypass primary water clarification
 - Sweep arm and underflow pump shut off
- One pump sufficient to supply two towers
 - 200 horse power motor shut down
- Gravity feed pump
 - Turned off two pumps



*6,900,000 watts/day (6.9 Megawatts per day)



TBL & the Decision Making Process

Office building constructed in 1993

- Mold
- Old windows
- Old fixtures
- Leaks
- Damages
 - Walls
 - Carpet
- Malfunctioning HVAC
- Unkempt landscaping
- Generally dated



Budget \$125,000

Economic driver

- Replace HVAC
- Mold remediation/update suite
- Repair damaged walls
- Repair damaged carpet
- Landscape maintenance

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Biodiversity/Habitat	Life Cycle	



Economic drivers = \$111,000

■ HVAC repairs	\$90,000
■ Mold	\$15,000
■ Landscaping	\$ 1,000
■ General Repairs	\$ 5,000
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	\$111,000



Economic and environmental drivers

- HVAC optimization
- Mold remediation/general repairs
- Replace T-8 lighting
- Landscape improvements

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Economic and environmental drivers = \$121,000

■ HVAC Opt.	\$50,000
■ Mold	\$15,000
■ Gen repairs	\$ 5,000
■ Lighting upgrade	\$45,000
■ Landscaping	\$ 6,000
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	\$121,000



Triple Bottom Line

- HVAC Optimization
- Repair roof
- Mold remediation/general repairs
- Replace T-8 lighting
- Landscape maintenance
- Common area remodel

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Triple Bottom Line = \$123,000

■ HVAC Opt.	\$50,000
■ Mold	\$15,000
■ Lighting upgrade	\$45,000
■ Landscaping	\$ 1,000
■ Common area	\$12,000
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	\$123,000



The art of sustainability

- Look at your customer's needs
- Work with your supply chain
- Leverage your current position
- Start with current skill set
- Anticipate change
- Empower individuals





Conclusion

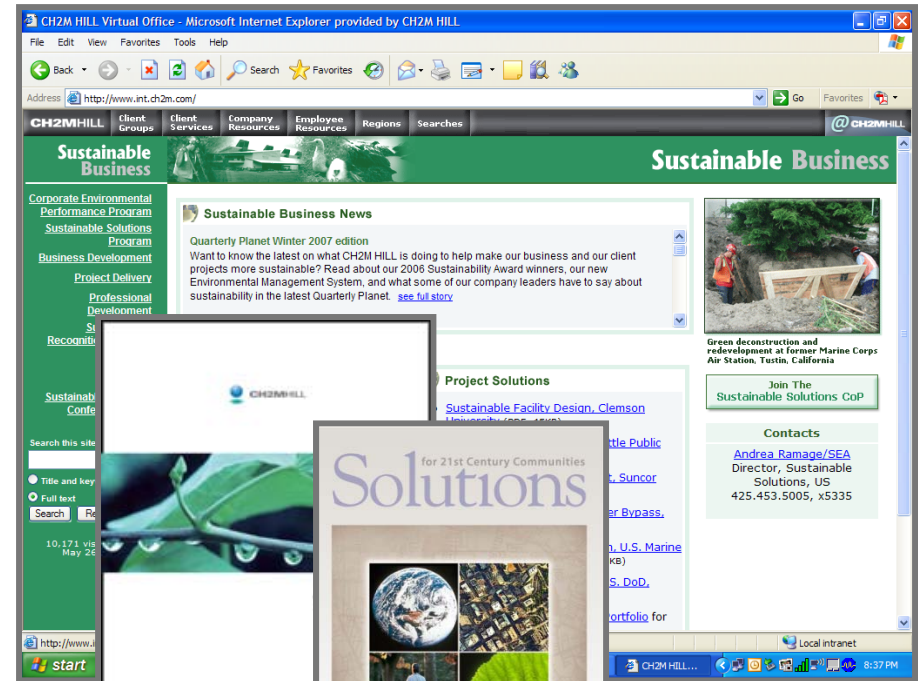
Conclusion

- Sustainability is an issue that effect us all
- TBL provides methodology to find Sustainable Solutions
- TBL can be incorporated into your decision making process



Sustainable solutions tools

- Virtual Office | Client Services | Sustainable Solutions
- Sustainable Solutions Community of Practice (CoP) (320+ members)
- CoP directory
- Expert directory
- Library
 - Training
 - Publications and papers
 - Tools and technologies
 - Posters



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