

# Sustainable Development for Policy Makers and Implementers

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SUSTAINABILITY **LEADERSHIP** ACADEMY

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# ***Sustainable Development***

**“... development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Source: Brundtland Commission 1987)**

**SUSTAINABILITY IS THE GOAL  
SUSTAINABLE DEVELOPMENT IS THE MEANS**

# THE “TRIPLE BOTTOM LINE”

## *Financial Bottom Line*

Considering the impacts on *financial capital*:  
The most common bottom line of all organizations includes today’s cash flows and profits and losses *and* tomorrow’s.

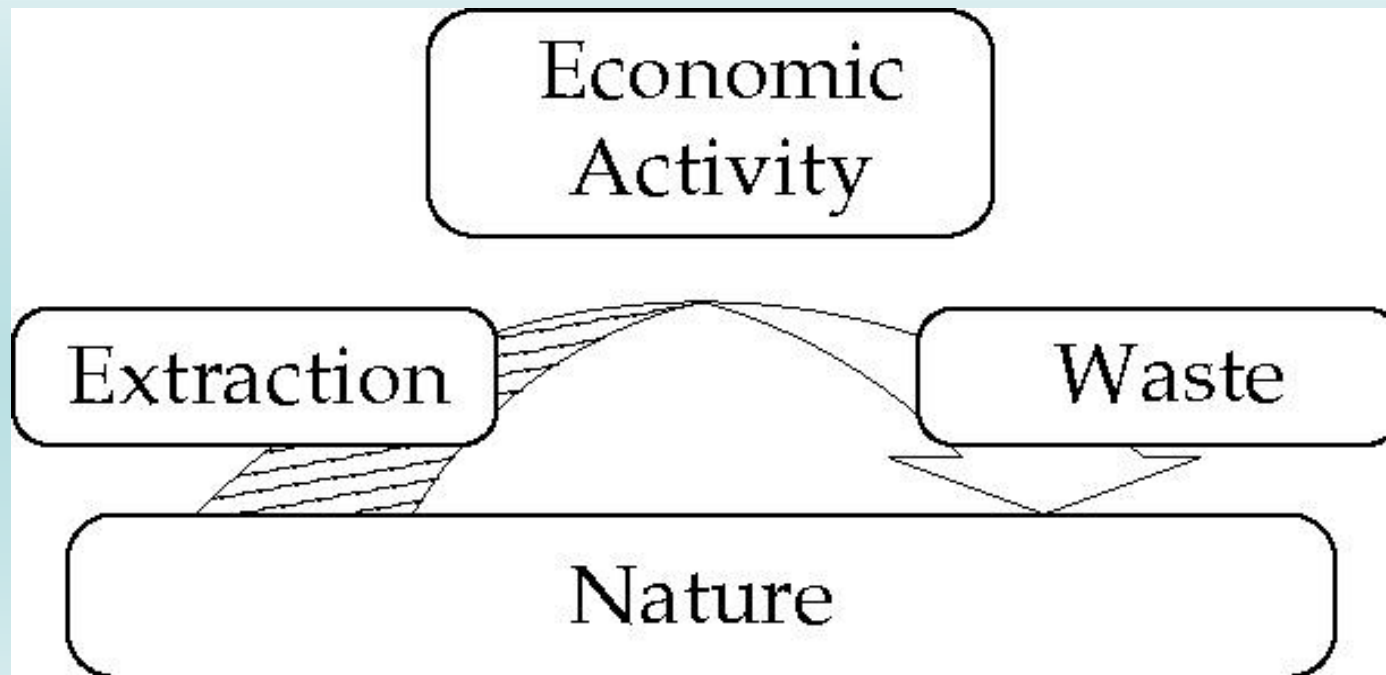
## *Social Bottom Line*

Considering the impacts on *social capital*: employees, local community, people in other regions/counties where raw materials are produced or are disposed of, and future generations.

## *Environmental Bottom Line*

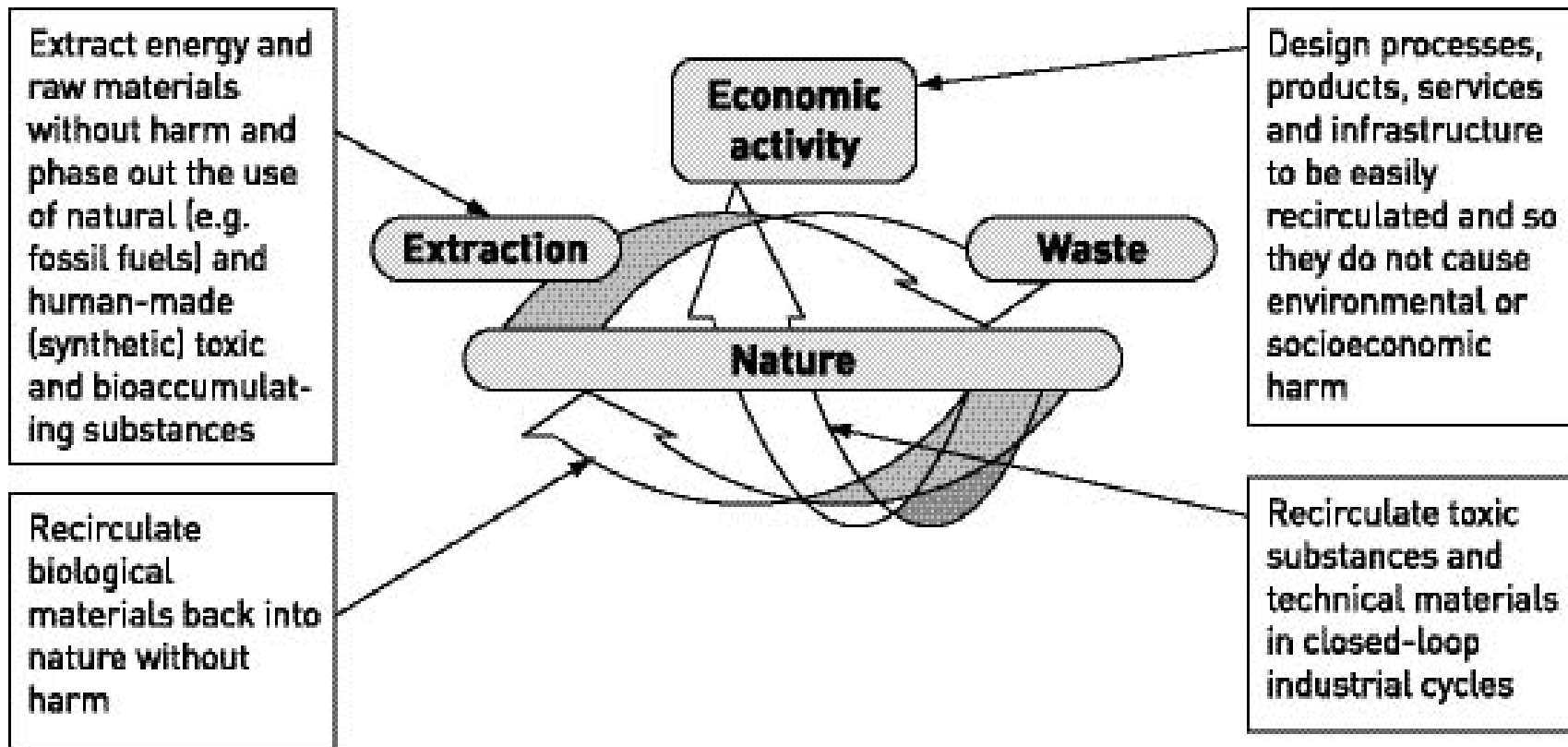
Considering the impacts on *natural capital* (the stocks and flows of ecological processes and species).

**CURRENT ECONOMIC SYSTEMS ARE FUNDAMENTALLY  
LINEAR (“TAKE-MAKE-WASTE”)**



**Linear approach is used by almost *all* organizations today:  
public and private, large and small.**

# SUSTAINABILITY REQUIRES A TRANSITION TO A CIRCULAR PRODUCTION SYSTEM (“BORROW-USE-RETURN”; “CLOSED-LOOP”; “CRADLE-TO-CRADLE”)



**The sustainable circular 'borrow-use-return' economic model**

*Sustainable Development Requires  
Synergy Between Normally Separated  
Programs and Functions  
(a systems approach)*

*Therefore, it goes well beyond  
Compliance, Pollution Prevention,  
Recycling, Energy Efficiency etc.*

# THE ROLE OF LOCAL GOVERNMENT



- Walk the talk by modeling the practices
- Adopt policies & programs to assist the private sector, non-profits, households and individuals to engage.
- Use government purchasing power to stimulate and build markets for leading edge products and services.

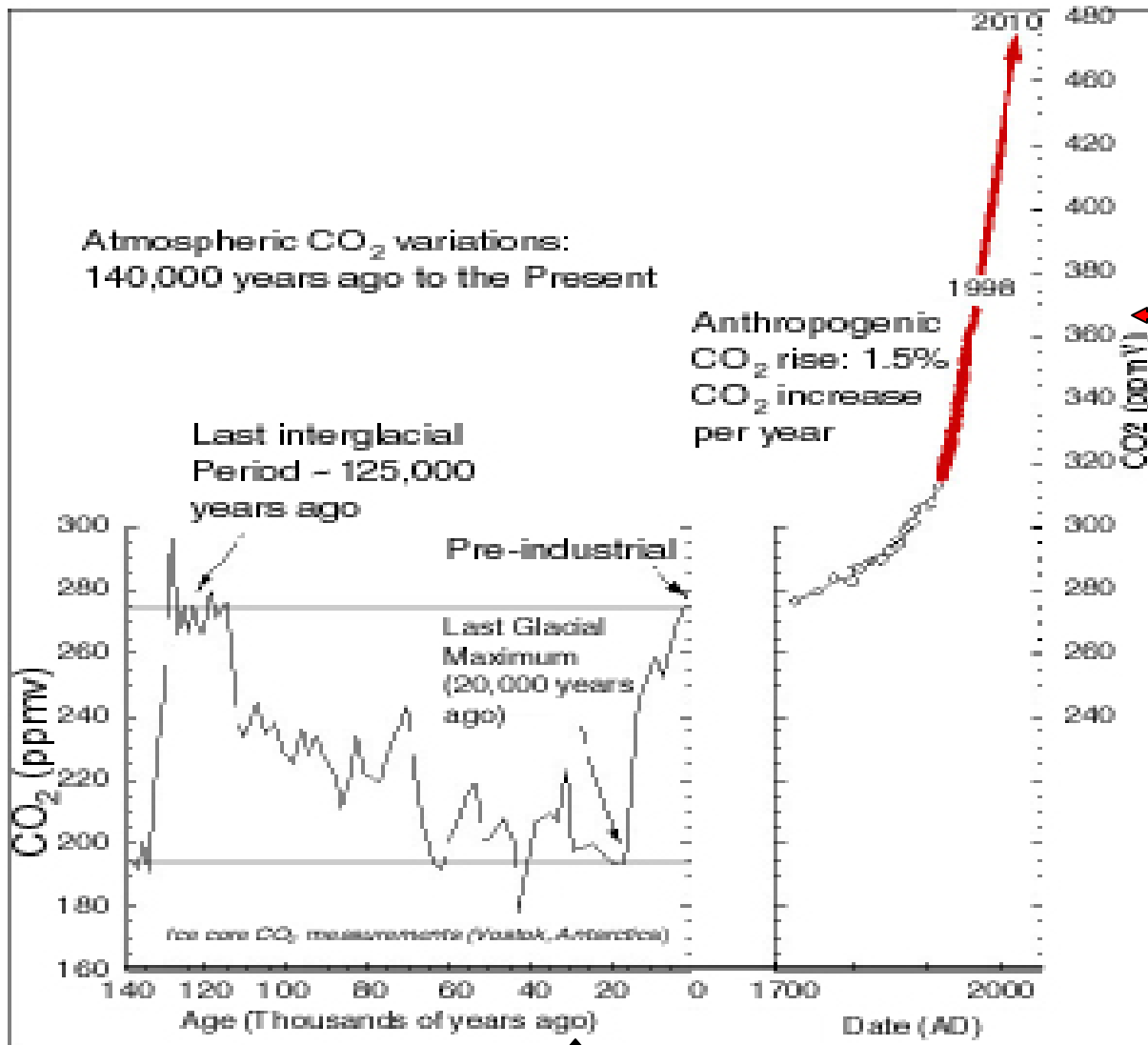
# **DRIVERS OF LOCAL GOVERNMENT SUSTAINABLE DEVELOPMENT & CLIMATE CHANGE INITIATIVES**

- ***Cost Savings and Improved Efficiency*** (from energy efficiency, reduced waste, process redesigns etc.)
- ***Reduce Risks*** (financial, legal, civic, GHG caps, impacts of climate change)
- ***Business and Job Retention and Expansion*** (plugging money leaks out of the local community, growing business clusters in emerging industries)
- ***Economic Security*** (reduced vulnerability to rising energy costs, disrupted supplies of energy or food)
- ***Improve Workers Health and Productivity*** (lower absenteeism, lower turnover, reduced health care costs)
- ***Increased Economic Competitiveness*** (providing the factors critical to retaining and attracting skilled people and businesses)
- ***Improve Image of Government*** (improved tax revenues, greater public support for public services)
- ***Enhanced Quality-of-Life*** (for residents and business)

# **Increasingly Pressing Driver: Human-Induced Global Warming & Abrupt Climate Change**

- **Scientists know that human activities are a significant global contributor to today's changing climate.**
- **CO<sub>2</sub> from fossil fuels is the major heat-trapping gas causing climate change.**
- **CO<sub>2</sub>, builds up quickly in our atmosphere, is only removed *very slowly*.**
- **The world is already experiencing serious economic, social, ecological, and even political affects and risks.**
- **Solutions must involve everyone—nations, states, communities, companies, households, individuals.**
- **As with most risks, there is also opportunity in the changes that are occurring.**

# CO<sub>2</sub> Concentration In Our Atmosphere



CO<sub>2</sub> today: 379 ppm

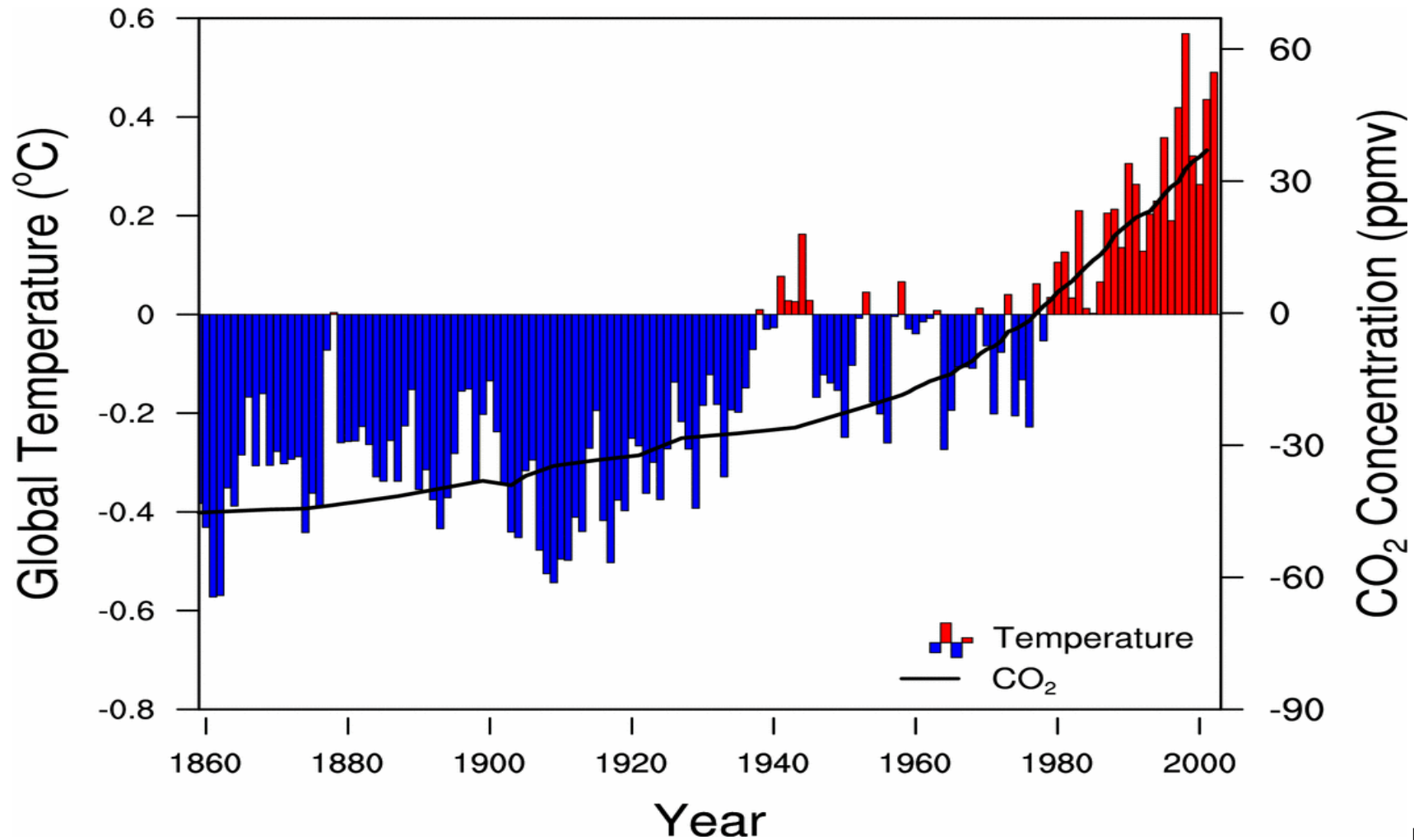
In my lifetime, it's risen by over 57 ppm!

➤ Higher today than it has been for 400,000 years—more likely 2 million years.

↑ The first human farmers, 12,000 years ago...

# Ecological Impacts Are Evident...

## Average global temperature increase



# Historical and Forecast Oregon Greenhouse Gas Emissions

	1990	1995	2000	2015	2025
<b>Gross CO<sub>2</sub></b>	<b>49.2</b>	<b>52.6</b>	<b>57.9</b>	<b>67.1</b>	<b>73.3</b>
<b>Net CO<sub>2</sub></b>	<b>48.4</b>	<b>51.9</b>	<b>57</b>	<b>66.1</b>	<b>72.1</b>
CO <sub>2</sub> From Fossil Fuel Combustion	48.5	51.9	57.0	65.9	71.8
Industrial Processes	0.3	0.3	0.6	0.9	1.1
Waste	0.3	0.4	0.3	0.3	0.4
Landfill Carbon Storage	(0.8)	(0.8)	(0.8)	(1.0)	(1.2)

Data provided by Sam Sadler, Oregon Department of Energy

# Some of the Projected Ecological Impacts...

Based on data from UW Climate Impacts Group and  
National Center for Atmospheric Research



- Water content of Cascade snows may drop by 59% within 20-50 yrs.
- ...resulting in changes in timing & quantity of freshwater resources.
- Sea level rise—eroding beaches, impacting coastal communities, tourism, estuaries and salmon.
- Disruptions in our “expected” climate: More intense storms, winter flooding, summer draught, heat waves.

➤ *Climate changes are occurring faster than evolution causing surprises such as abrupt change in species habitat and ecosystems.*



Courtesy USFWS

UW CIG/NCAR

# Potential Socio-Economic Effects

- Significant increases in energy costs as over time reduced snow pack impacts hydroelectric system
- Agricultural output may suffer as less water and increasing nighttime temperatures reduce crop yields.
- Winter floods & summer draught will affect urban infrastructure and may force industries dependent on ample supplies of water (e.g. high tech) to relocate.
- Increases in illnesses and public health problems as airborne diseases such as West Nile virus move north that previously could not survive colder climates.
- Rural communities (especially eastside) and the poor will be hit hardest (at least initially).

# **RISKS TO GOVERNANCE**

**Ultimately, abrupt climate change may threaten the ability for our existing institutions to *govern effectively.***

# **AS WITH MOST RISK, THERE IS ALSO OPPORTUNITY!**

- **Increased energy efficiency, shift to renewable (non-fossil fuel based) energy, and adoption of other “sustainable” practices will *save money* and is already generating *new industries & jobs*.**
- **Making Oregon a leader in the field will retain and draw entrepreneurs and capital that foster a strong economy.**
- **All of the above will reduce risks, protect governance, and enhance livability.**

Why other cities think sustainable development and climate change initiatives are important:

**Burlington, VT**

**Fort Collins, CO**

**Olympia, WA**

**Boulder, CO**

**Missoula, MT**

# Burlington, VT

- Meet the challenges and goals of the city by integrating sustainability
- Strengthen the city's priorities
  - poverty, land use goals, and protecting Lake Champlain
- Climate protection is hand in hand with their goal of meeting energy demand through energy efficiency

# Fort Collins, CO

- Improve the economic vitality and sustainability of the city
- Enhance the strengths of the community
- Address the challenges facing Fort Collins
  - air quality, preserving natural areas, waste, energy use, storm water quality, and water conservation.

# Fort Collins, CO (cont'd)

The reasons why Fort Collins is taking actions to reduce greenhouse gases:

- To reduce the environmental and human health impacts of global warming on the Fort Collins community
- The opportunity to demonstrate leadership
- Another context for decision-making
- To further support existing community goals.

# Olympia, WA

- Community desire
- Protecting the assets of the community
  - preserving its natural beauty and resources
- Integrated solutions to challenges such as growth management, transportation, and storm water issues
- Mitigate flooding and landslide impacts of climate change

# Boulder, CO

- Solve transportation issues
- Remove toxics from the environment for the health of residents
- Preserve the unique and beautiful landscape and open space
- Economic sustainability and vitality
- Protect Boulder's water supply, quality of life, and tourism industry, which are threatened by climate change.

# Missoula, MT

- Framework for providing public goods and services
- Incorporates sustainable development in how the city grows and develops
- Addressing global warming as a threat to the pristine beauty of the region
- Combines global warming concerns with meeting the energy needs of its citizens through energy efficiency, and in meeting its air quality goals

**What these cities are doing to  
address sustainable development  
and climate change:**

**Burlington, VT**

**Fort Collins, CO**

**Olympia, WA**

**Boulder, CO**

**Missoula, MT**

# Burlington, VT

## *Burlington Legacy Project Efforts:*

- Sustainable Schools Project
- Burlington Food Project
- Open Space Protection Plan
- Waterfront Cleanup
- Brownfield Redevelopment
- Business Development

# Burlington, VT

*Climate Action Plan (Five Goal Areas):*

- Energy efficiency
- Alternative vehicle fleet,
- Regional education program,
- Biomass fuel technologies
- Regional transport demand management

# Fort Collins, CO

## *Comprehensive Plan*

*(Nine key areas of importance):*

- Sustainable purchasing
- Employee health and safety
- Green building
- Brownfield redevelopment
- Healthy ecosystems
- Employee commuting
- Pollution and waste prevention
- Planning and management
- Climate wise business program

# Olympia, WA

*“Consider every action you take and its impact to the 7th generation.”*

## *Action Areas:*

- Infill Development Program
- Neighborhood Program
- “Clean Clothes” Initiative
- Open Space and Parks
- Green Fleet Program

# Boulder, CO

- Open Space
- Zoning for mixed use areas
- Community Transit Network
- Recycling
- Integrated Pest Management
- Green Purchasing
- Adoption of the Kyoto Protocol

# Missoula, MT

- Planning
- Air Quality
- Transportation
- Economic Development
- Energy Efficiency

# Resources

- ***UO Climate Change Resource Center*** (in development see <http://cwch.uoregon.edu> in January). Scientific, economic, & social information, local impact assessments, greenhouse gas quantification, other research for local governments.
- ***UO Sustainability Leadership Academy***. Professional development seminars for public and private sectors. <http://sustain.uoregon.edu>
- ***ICLEI – Local Governments for Sustainability and Cities for Climate Protection Programs***: <http://www.iclei.org/> or <http://www3.iclei.org/ccp-au/about.cfm>
- ***University of Washington Climate Impacts Group (CIG) and National Center for Atmospheric Research (NCAR)***