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# Installation Sustainability

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# Outline

- Why Installation Sustainability?
- What is Installation Sustainability?
- How to Implement Installation Sustainability
- What other Installations are Doing



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# Why Installation Sustainability?



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***“A rapidly changing world deals ruthlessly with organizations that do not change.***

***We must constantly reshape ourselves to remain relevant and useful members of the joint team.”***

General Peter J. Schoomaker  
Chief of Staff, United States Army

***The United States Army...***  
***At War and Transforming***



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# Installation Sustainability

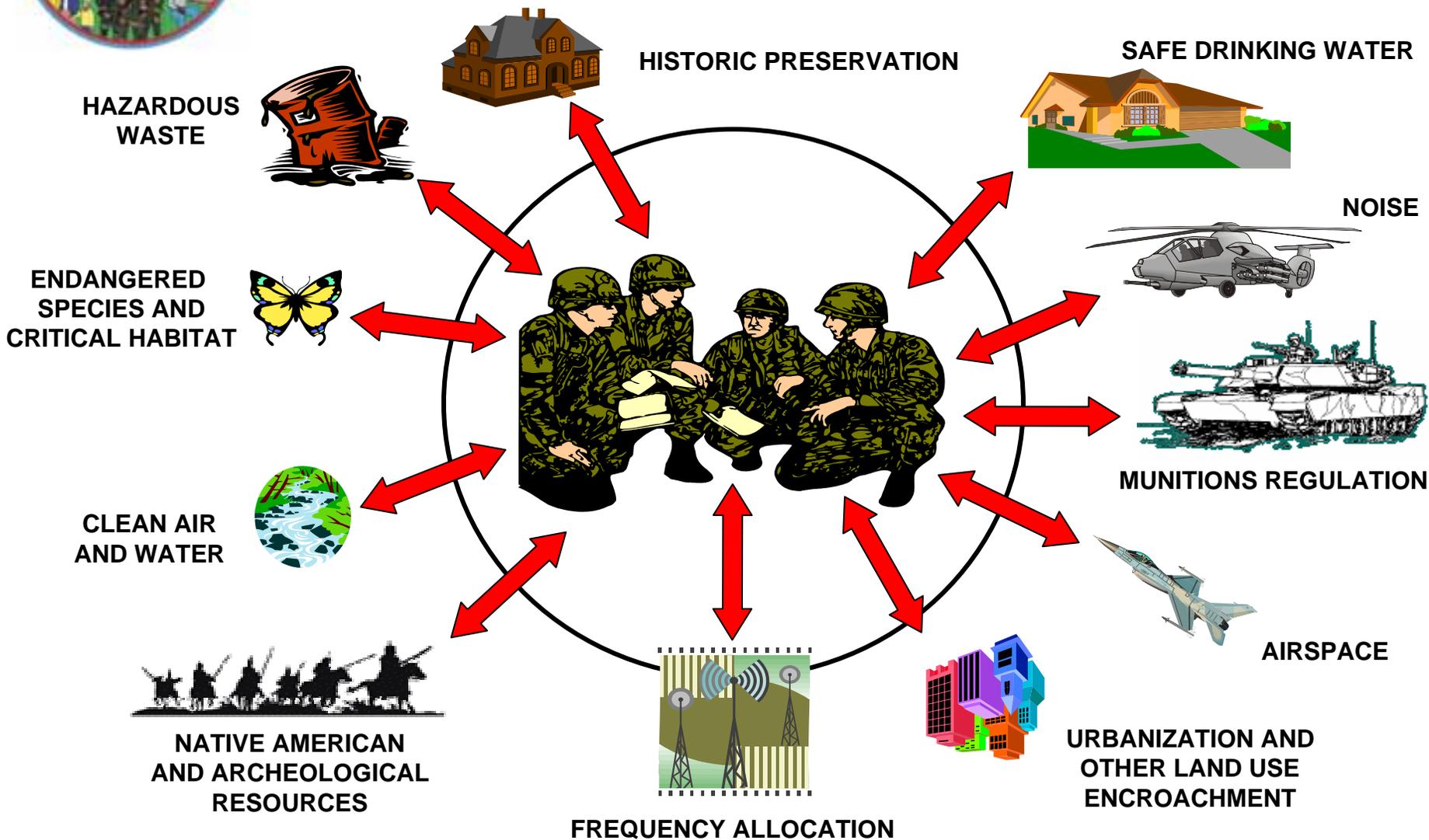
“Installation Sustainability moves us beyond simply solving today’s problems. A sustainable Army is one that wins today’s battles while laying the foundation for our future success. It connects today to tomorrow with sound business and environmental practices... Sustainability enables today’s Army to empower the Future Force.”

Assistant Secretary of the Army  
(Installations & Environment)  
September 2003





# Increasing Pressures on Army Activities

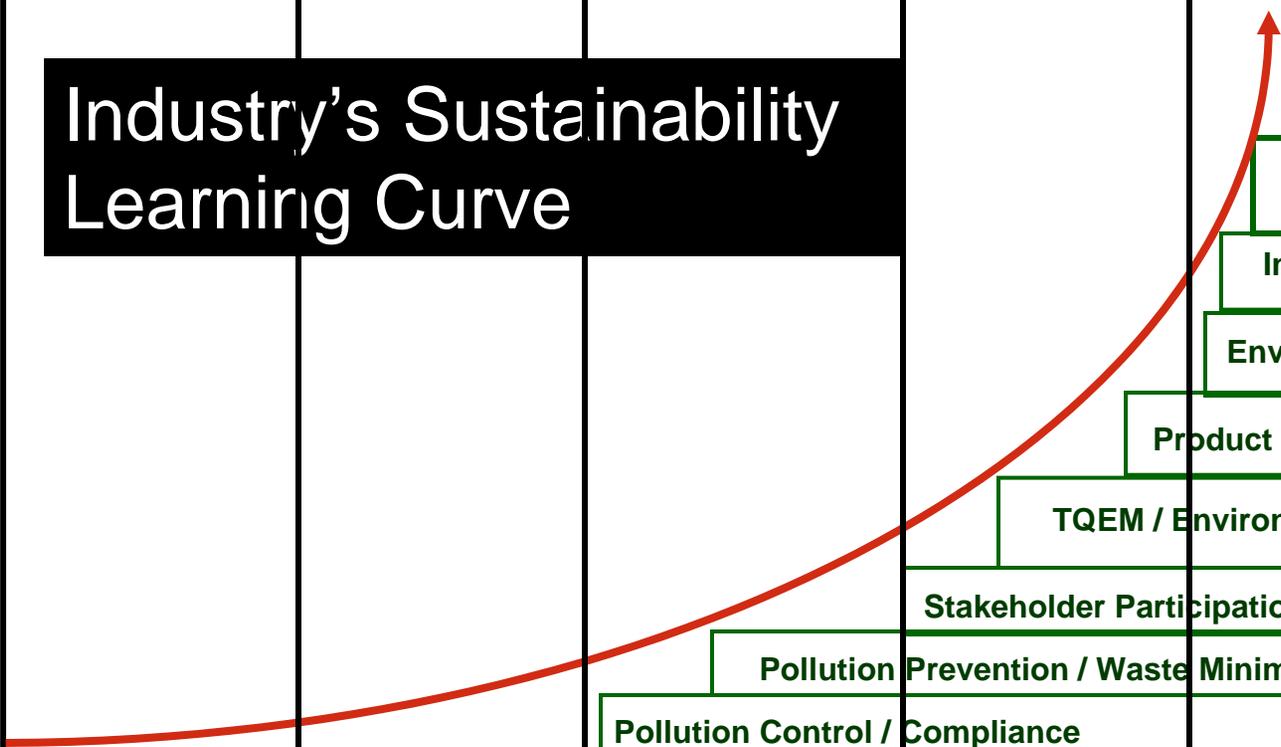




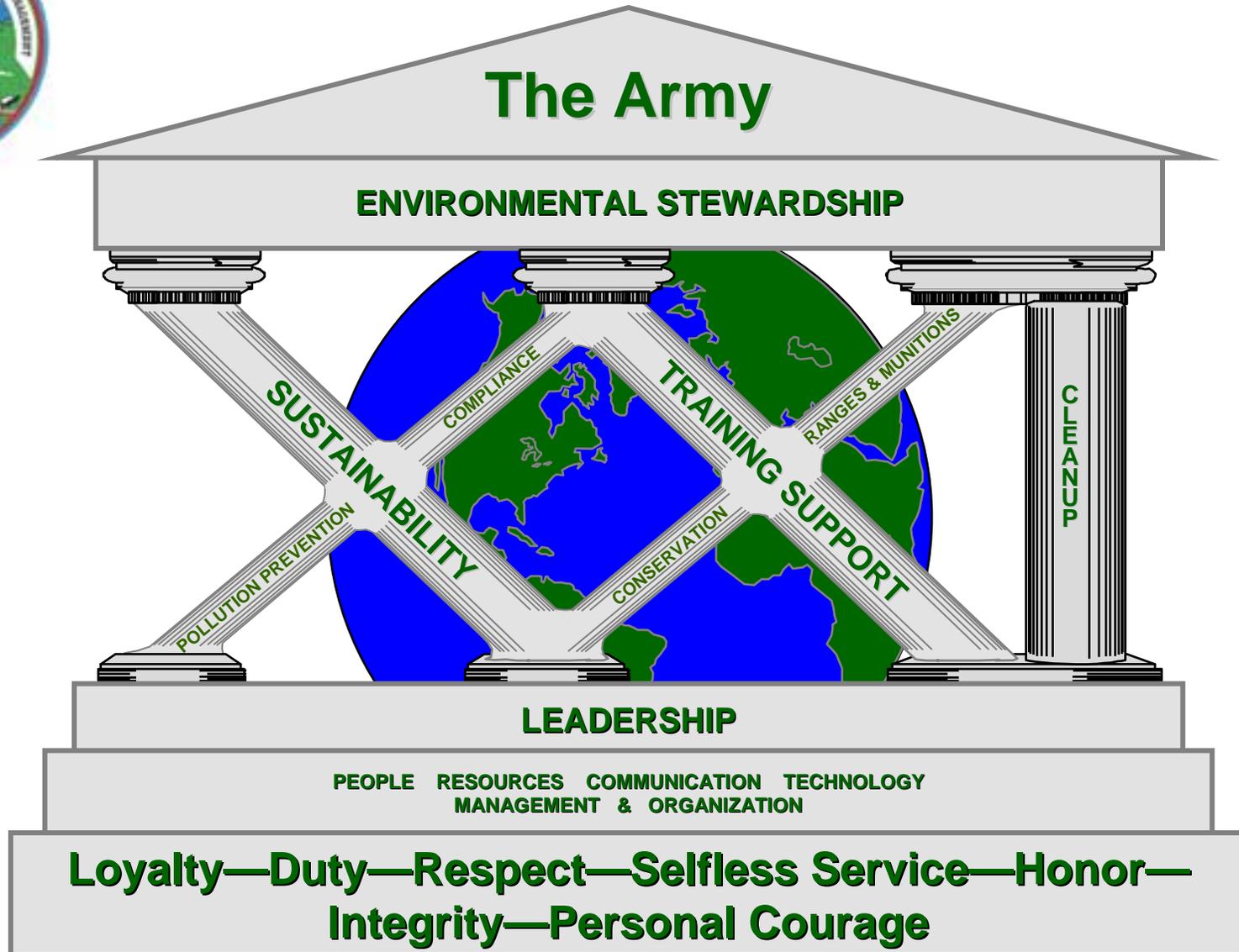
# Evolution of Environmental Management



# Industry's Sustainability Learning Curve

		1st Era <b>COMPLIANCE</b>	2nd Era <b>BEYOND COMPLIANCE</b>	3rd Era <b>ECO-EFFICIENCY</b>	4th Era <b>SUSTAINABLE DEVELOPMENT</b>
					<b>TNS, Design for Sustainability, Biomimicry. Evolutionary Learning</b>
				<b>Expanded CSR, Natural Capitalism</b>	
				<b>Integrated Management Systems</b>	
				<b>Environmental Cost Accounting</b>	
				<b>Product Stewardship/DFE/LCA</b>	
			<b>TQEM / Environmental Management Systems</b>		
			<b>Stakeholder Participation</b>		
		<b>Pollution Control / Compliance</b>	<b>Pollution Prevention / Waste Minimization</b>		
<b>CORPORATE RESPONSE</b>	<b>Before 1970s Unprepared</b>	<b>1970s Reactive</b>	<b>1980s Anticipatory</b>	<b>1990s Proactive</b>	<b>2000s High Integration</b>
<b>INDUSTRY GOALS</b>	<b>None</b>	<b>Regulatory Standards</b>	<b>Cost Avoidance</b> Impact Reduction Pre-emption of Regulation Leadership Legitimacy Protection Partnerships Competitive Edge	<b>Profit Centre Approach</b> Eco- efficiency Dematerialization Strategic Environmental Management	<b>Explicit Mainstreaming of Environmental Goals</b> DFE/LCA Systems Environmental Cost Mgmt. Resource Productivity Products of Service Culture Change

Source: The Natural Step for Business, Brian Nattrass & Mary Altomare





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# Army Vision for the Environment

**“An Army culture in which decisions optimize the availability of sustainable land and infrastructure to support the Army mission and minimize impediments to readiness, environmental damage, and risks to the environment and human health”.**



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# Army Environmental Mission

**“Enhance combat readiness through early consideration and resolution of environmental impacts and consequences of Army decisions and actions”.**

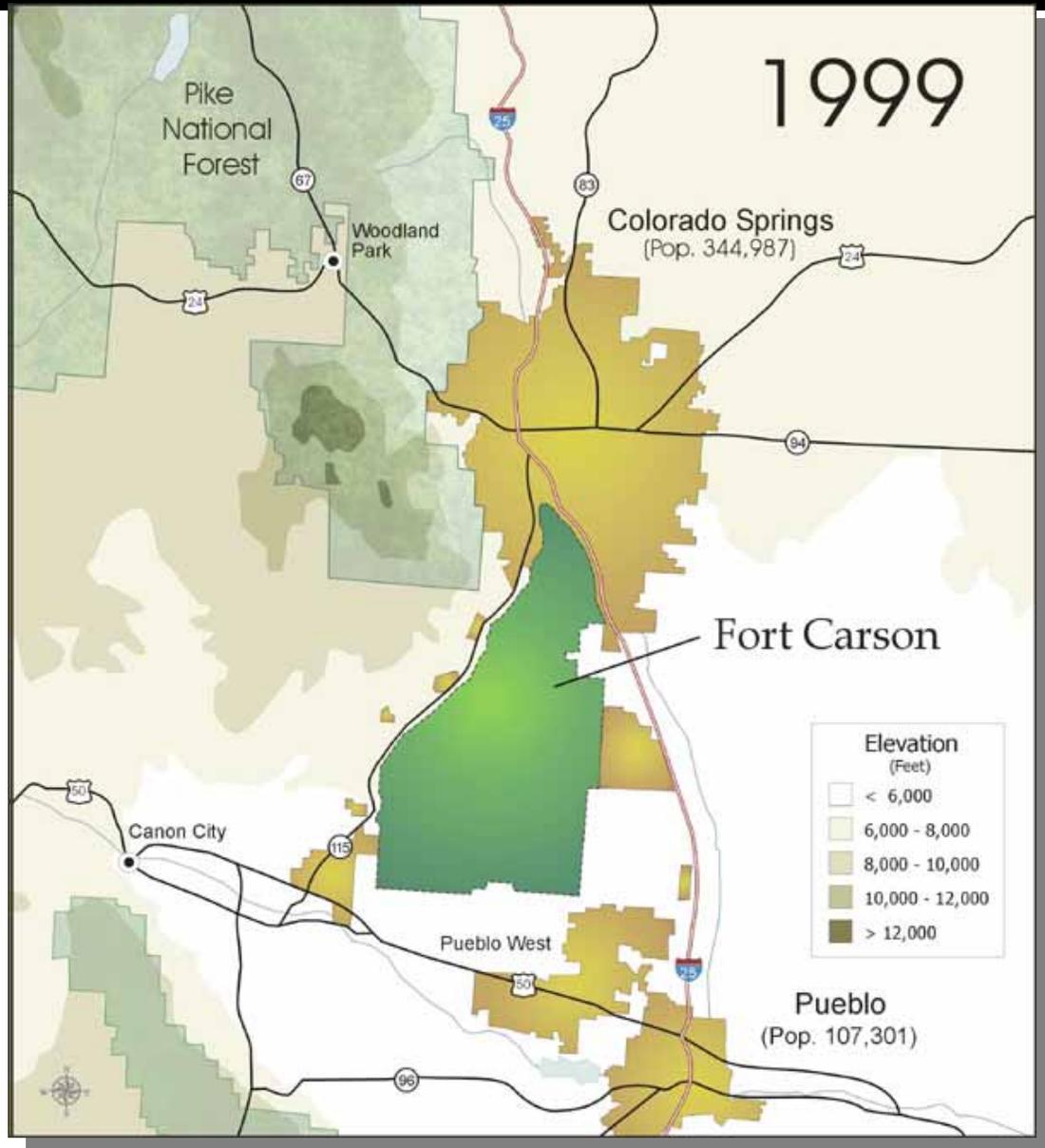


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# Urban Growth at Fort Carson and Fort Lewis



# Urban Growth at Fort Carson, Colorado



# Fort Lewis From Space





# Why Sustainability?



- **Ensures that environment will support Mission accomplishment for the long haul**
- **Proactively addresses long-range issues with mission impact** (*"Pay me now or pay me later"*)
- **Allows cooperative effort with community, regulators, other stakeholders on common issues** (*e.g., urban sprawl; noise; air and water pollution; energy use*)
- **Demonstrates leadership; enhances public perception of the military**
- **The right thing to do**

*Fort Lewis's Installation Sustainability Program*



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# Achieving Installation Sustainability— a Paradigm Shift

**Sustainable Installations =**

- + Sustainable Land Management**
- + Sustainable Operations**
- + Sustainable Infrastructure**

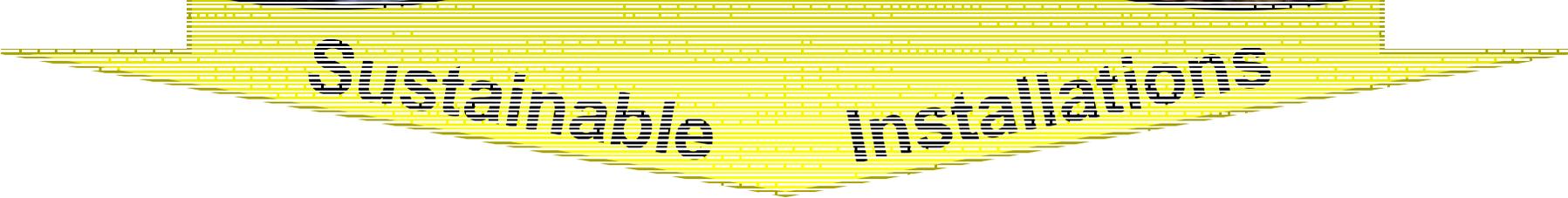
***Environmental Management Systems  
are a tool to achieve this  
Sustainability***



Protecting  
our Freedom



Preserving  
the  
Environment



*Sustainable* Installations



Preserving the Environment  
while Protecting our Freedom



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# What is Installation Sustainability?



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# What is “Sustainability”?

- **Sustainability:** “Meeting the needs of the present without compromising the ability of future generations to meet their own needs” - *United Nations Brondtland Commission*
- **Theodore Roosevelt, 1910:** “I recognize the right and duty of this generation to develop and use the natural resources of our land; but I do not recognize the right to waste them, or to rob, by wasteful use, the generations that come after us.”
- **Sustain:** (Websters) to keep in existence, keep up, maintain or prolong, to provide support of; to strengthen in spirits, courage, encourage to uphold the validity or justice of.



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# What is *installation* sustainability?

... a condition in which an **installation** is able to fully execute its **present missions** without compromising either its ability to accomplish **future missions** or the ability of its **neighboring communities** to realize their **aspirations**.

- Emphasis on sustaining the **mission** must incorporate link with the **natural and built environments** within which soldiers and civilians live, work, play and train.
- Requires additional focus on the social, economic and physical **well-being** of soldiers and civilian personnel, their families and **communities**, all of whom are impacted.



It means  
sustaining...





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# Principles

*two “popular” perspectives*

- The Natural Step
  - Karl-Henrik Robèrt
- **Natural Capitalism**
  - Paul Hawken, Amory Lovins and Hunter Lovins



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# The Natural Step - “System Conditions”

In order for a society to be sustainable:

Nature’s functions and diversity must not be systematically:

- 1 ...subject to increasing concentrations of substances extracted from the Earth’s crust;
- 2 ...subject to increasing concentrations of substances produced by society; or
- 3 ...impoverished by over-harvesting or other forms of ecosystem manipulation.

And,

- 4 Resources must be used fairly and efficiently in order to meet basic human needs worldwide.



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# FOUR PRINCIPLES OF SUSTAINABILITY

- You can't dig stuff out of the Earth and spread it around indefinitely (**Oil and Coal**)
- You can't spread human-created stuff around in Nature indefinitely (**Solvents, POL**)
- Don't erode Nature's capacity to do all the wonderful things Nature does (**Water and wind erosion**)
- Do business efficiently and make sure that everyone has enough

*Adopted from The Natural Step....*



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# A Sustainable Installation...

- **Fully enables military training**
- **Protects the well-being of Soldiers and families**
- **Has a mutually-beneficial relationship with the local community**
- **Is life-cycle cost-effective to operate**
- **Systematically decreases its dependence:**
  - ◆ *on mined and fossil fuels*
  - ◆ *on non-biodegradable and toxic compounds*
- **Does not use resources faster than nature can regenerate them**
- **Operates within its “fair share” of Earth’s resources**



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# Benefits

- **Enhanced operational effectiveness**
- **Increased resource efficiency**
- **Minimized waste production**
- **Optimized lifecycle costs**
- **Strengthened relationships**
- **Restored ecological functions**



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# Practices – Army Examples

- **Deployable Photovoltaic Technology**
- **Green Neighborhood Development**
- **Zero Footprint Camp**
- **Private Lands Initiative**
- **“Bio-mimicry” of Spider Silk**
- **Installation Sustainability Program**



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# SUSTAINABILITY

**Sustainability is a concept, not a program, process, or system. It is an ideal with principles that will improve**

**EFFICIENCY,  
EFFECTIVENESS, AND  
ECONOMIC STABILITY**



## Build it Better: Bren Hall- University of California, Santa Barbara

- 2<sup>nd</sup> LEED Platinum Rated Building in America
- Surpasses CA Energy Code by 32-40%
- 100% demolition waste recycled, 92% of construction waste recycled
- Generates 7-10% of its own energy on-site through a PV system
- **Cost to “go green” was less than 2% of the total building cost.**
- Construction materials were from 80%-30% recycled content, depending on the material
- Natural ventilation, energy efficient light, heating and cooling, recycled floors, air monitoring system
- Waterless urinals, low-flow water fixtures, green paints and adhesives, reflective paint on the roof





## Ford Motor Company Dearborne, Michigan Plant

- Is investing an **additional \$8M** in a green roof, porous pavement for parking lot (reduced cost), and a constructed wetland for landscaping.
- Savings will include **elimination of a \$40M** storm water management system and **\$6M** budgeted for landscaping.



# Dancing Partners



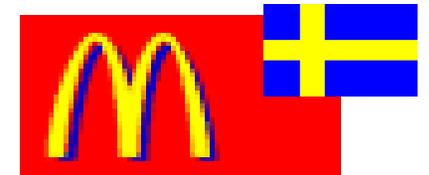
CRASH AND LEARN



City of Seattle



WHISTLER BLACKCOMB



CollinsWood®





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# How to Implement Installation Sustainability

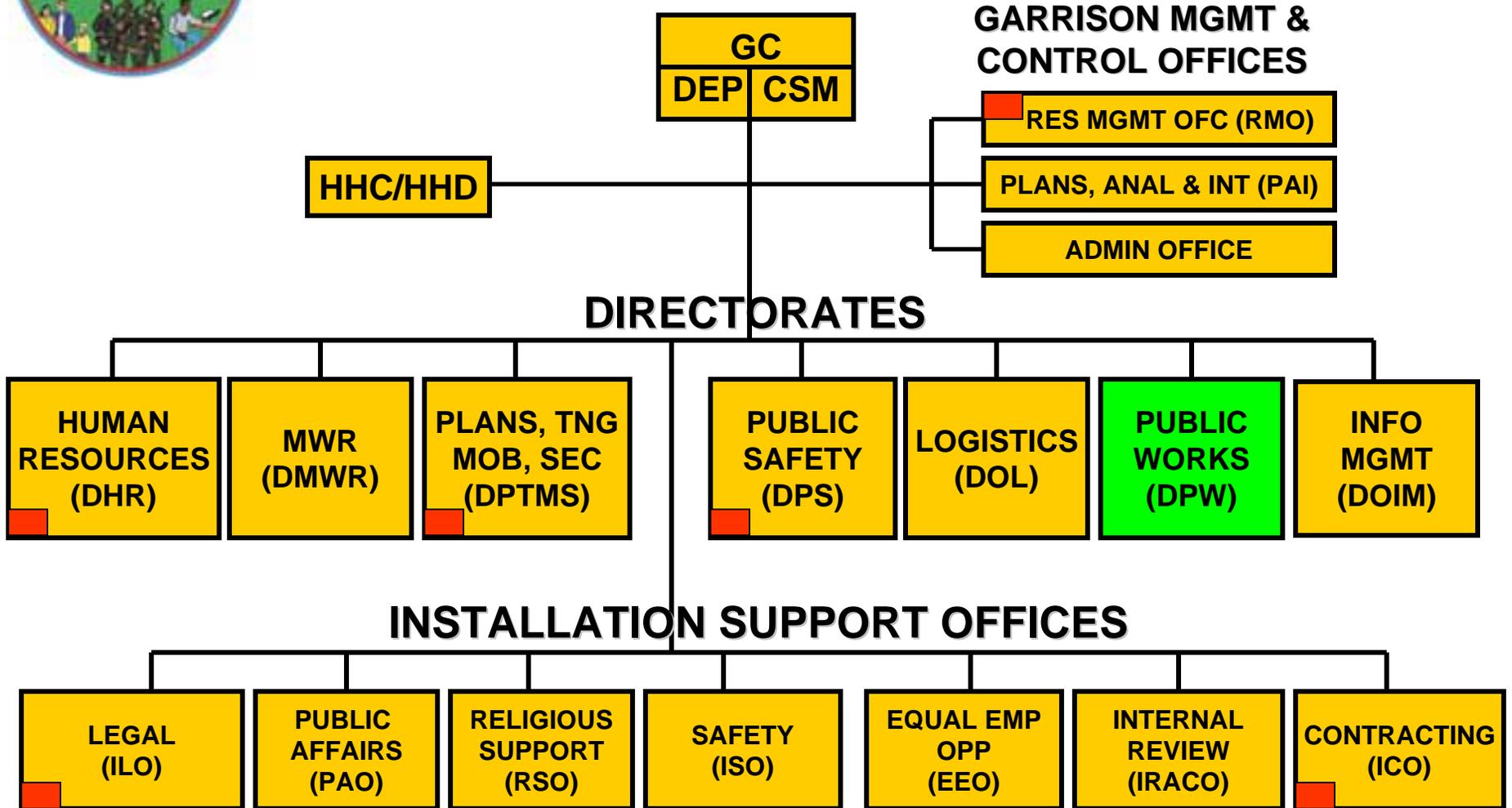


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**IMPLEMENTING THE  
SUSTAINABILITY CONCEPT IS  
NOT AN ENVIRONMENTAL, DPW,  
OR THE DPTM  
RESPONSIBILITY...IT IS THE  
GARRISON AND INSTALLATION  
COMMANDERS RESPONSIBILITY  
FOR IT WILL ONLY WORK WHEN  
THEY CHAMPION IT.**



# RECOMMENDED GARRISON STRUCTURE \*

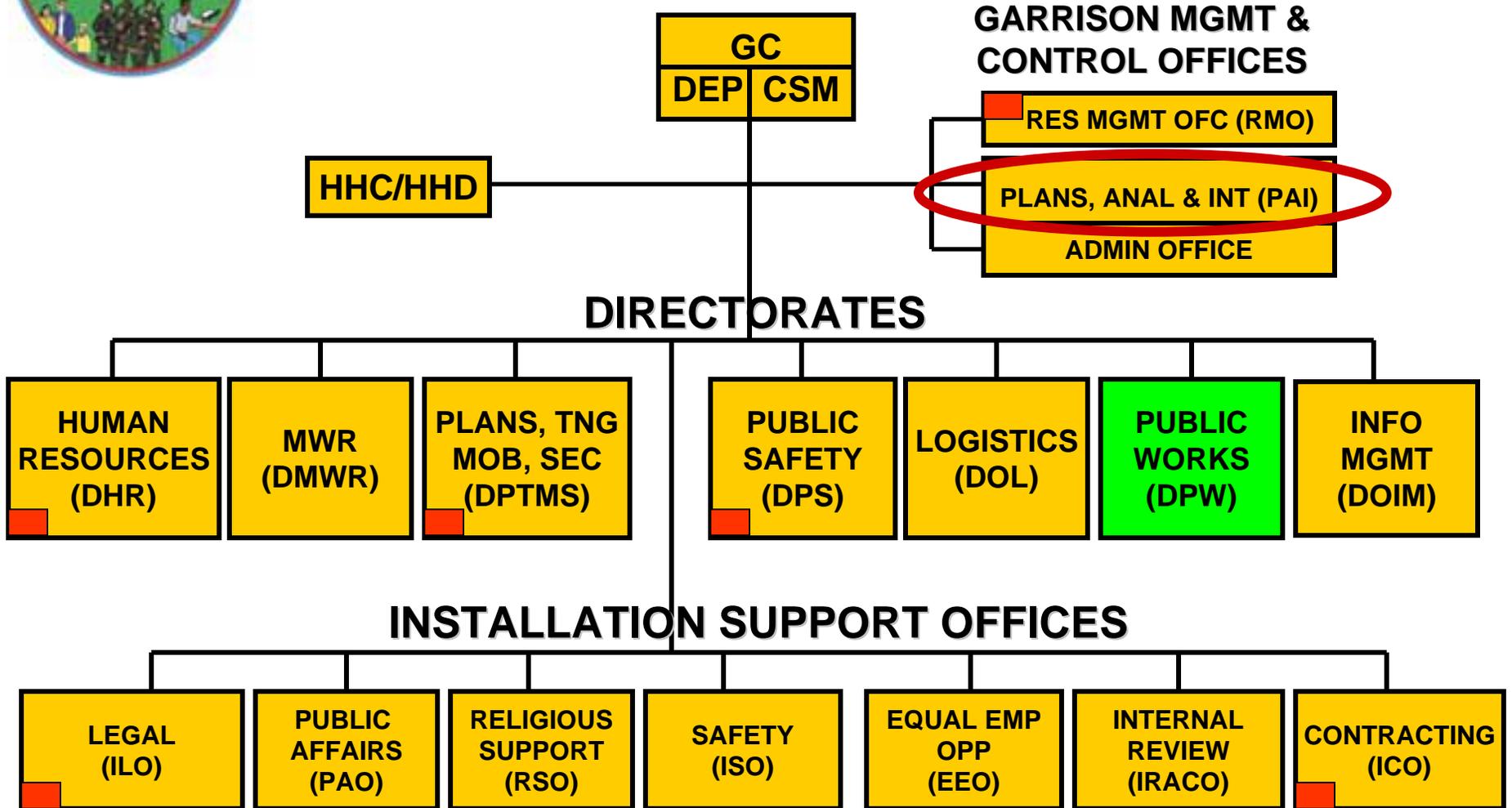


 O & O ISSUES WORKING

\* Presented by MG Aadland at DPW Conference Dec 03



# RECOMMENDED GARRISON STRUCTURE \*



O & O ISSUES WORKING

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# Installation Sustainability - Includes all core business processes

- **Facilities – meet platinum SPiRiT standards**
  - ◆ Energy – renewable, secure energy
  - ◆ Water – reduce use, improve quality
- **Strategic and Functional Planning – joint regional planning, planned development/growth, compatible land use, regional sustainability dialogue**
- **Transportation – convenient (reduced congestion), reliable, clean (emission-free), renewable fuels**
- **Procurement – completely cyclable non-toxic materials, no waste**
- **Military Training/Land Management – optimize use of existing training lands, create easements/buffers around fencelines, support current/future mission requirements while sustaining cultural, natural resources**



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# Installation (Master) Planning

“... a **blueprint** to enable the installation to effectively respond to future Army missions and community aspirations, while providing the capability to train, project, sustain and [transform] today’s force.”

– AR 210-20, *Master Planning for Army Installations*

- Develop a vision of the desired **end-state**
- Understand and document the **baseline** conditions
- Develop an overall **strategy** and implementation **plan**
  - Step-wise goals and objectives
  - Metrics and indicators
  - Programs and resources



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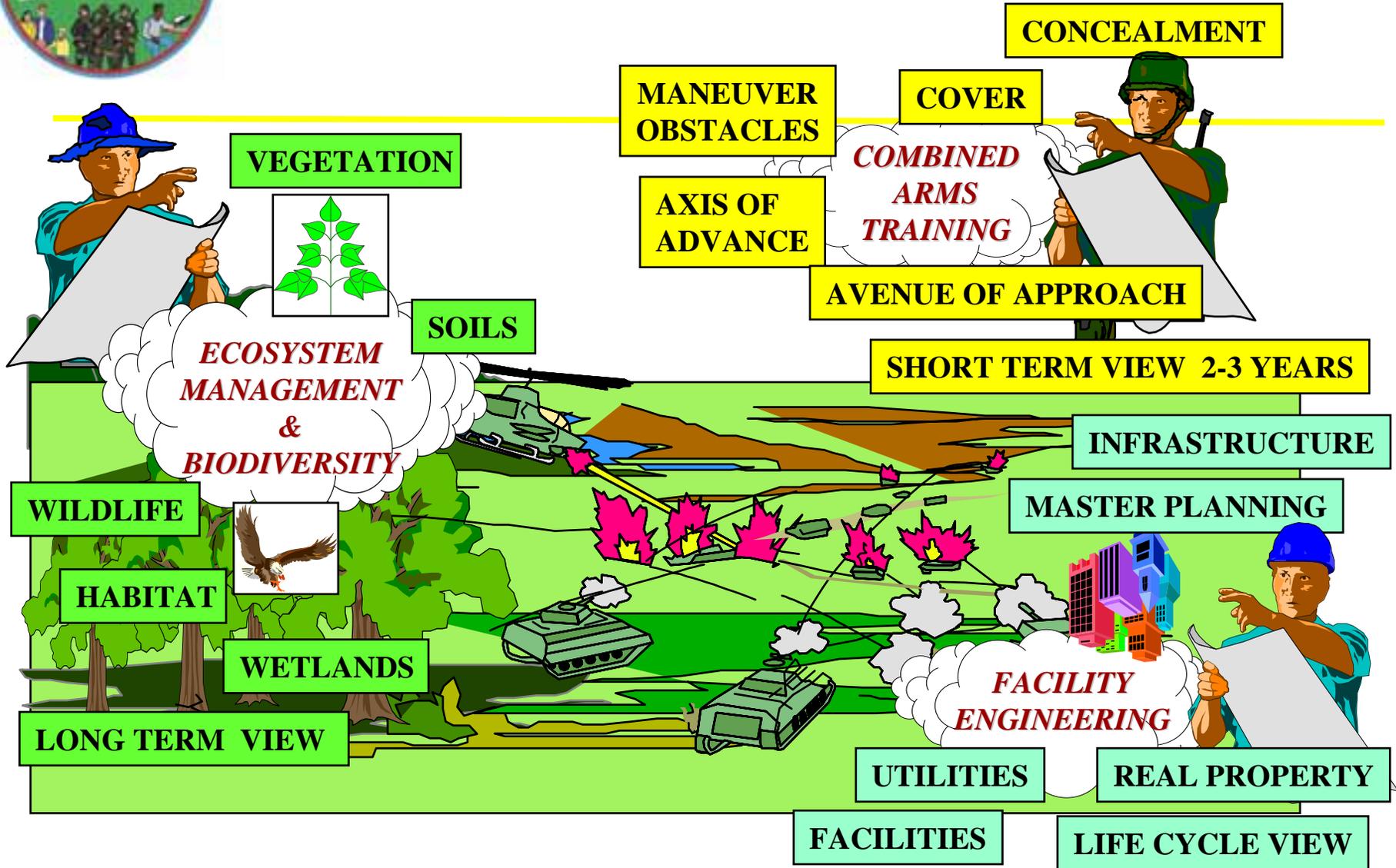
# Managing the Installation

## ➤ Installation Master Plan

- Real Property Master Plan
- Environmental Management System Implementation Plan
- Integrated Natural Resources Management Plan
- Integrated Cultural Resources Management Plan
- Endangered Species Management Plan
- Pollution Prevention Plan
- Sustainable Range Program
- Range Modernization Plan
- Army Alternate Procedures
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# Integrating Three Views of Land





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# SUSTAINABILITY MECHANICS

- **Integrate into Installation Strategic Plan**
- **Leadership commitment**
- **Build the team/champion**
- **Develop the baseline**
- **Set long-term goals**
- **Develop 5-year plans**
- **Implement/Assess**
- **Report Progress**



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# SYSTEMS THAT SUPPORT INSTALLATION SUSTAINABILITY

- Environmental Management Systems
- Army Performance Improvement Criteria (APIC)
- Military Decision Making Process (MDMP)  
FM 101-5
- National Environmental Policy Act (NEPA)



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# TYPICAL LONG TERM SUSTAINABLE GOALS

- **Reduce dependence on non-renewable energy by 2025**
- **Reduce amount of water taken from Little River by 70% by 2025, from current withdrawals of 8.5 million gallons per day.**
- **Zero discharge of wastewaters and aquifers cleaned by 2025.**
- **Meet platinum LEED standard by 2020 construction program; renovate 25% of existing structures to bronze standard by 2020**



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## Reduce dependence on non-renewable energy by 2025 (An Example)

- **Purchase renewable energy from provider (Fort Carson)**
- **Implement energy conservation measures in new construction (insulation, light efficiency (25% electricity used), HVAC systems (greatest potential for savings))**
- **All new construction at gold (required) or platinum**
- **Support public transportation usage through gate cluster construction, alternate fuel vehicles, mass transit with support stations**



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# SUSTAINABILITY ENHANCERS

- **SPiRiT**
- **Geographical Information System-Repository (GIS-R)**
- **Environmental Management Systems**
- **FY2002 MILCON Appropriations Act provided \$6M for DOD to perform renewable energy assessment**
- **Sustainability Conferences**
- **Enterprise Resource Program**



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# What Can HQDA DO?

- **Integrate sustainability into policy**
- **Develop supportive contract language**
- **Support SPiRiT building level decisions (and IDG standards)**
- **Coordinate with G-4 on affirmative procurement**
- **Ensure support from Corps on Deconstruction/provide instructions**
- **Provide guidance on Alternate Fuel Vehicles**
- **Develop renewable energy guidance/support/technology**



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# What Can HQDA DO?



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# Websites

- **OACSIM** [www.hqda.army.mil/acsimweb/fd/linksSDD.htm](http://www.hqda.army.mil/acsimweb/fd/linksSDD.htm)
- **USAEC** [www.aec.army.mil/usaec/support/sustainability00.html](http://www.aec.army.mil/usaec/support/sustainability00.html)
- **DENIX** [www.denix.osd.mil/denix/DOD/Library/Sustain/sustain/html](http://www.denix.osd.mil/denix/DOD/Library/Sustain/sustain/html)
- **USACERL** [www.cecer.army.mil/SustDesign](http://www.cecer.army.mil/SustDesign)
- **FORSCOM** [www.envquest.com/](http://www.envquest.com/)
- **Fort Bragg** [www.bragg.army.mil/sustainability/](http://www.bragg.army.mil/sustainability/)
- **Fort Lewis** [www.lewis.army.mil/publicworks/](http://www.lewis.army.mil/publicworks/)
- **Federal Network** [www.federalsustainability.org/](http://www.federalsustainability.org/)



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# Suggested Readings

- Believing Cassandra Alan Atkisson
- Cool Companies by Joseph Romm
- Natural Capitalism by Paul Hawken
- Beyond the Limits by Donella H. Meadows
- Institute State of the World by Worldwatch
- Better Environmental Policy Studies by Lawrence Susskind
- Beyond Growth by Herman E. Daly
- Biomimicry by Janine Benyus
- For the Common Good by Herman E. Daly
- Cradle to Cradle by William McDonough and Micheal Braungart
- Dancing with the Tiger by Brian Nattrass, Mary Altomare, and Nicholas Sontag
- The Ecology of Commerce by Paul Hawken
- Ishmael by Daniel Quinn
- The Natural Step for Business: Wealth, Ecology, and the Evolutionary Corporation by Brian Nattrass, Mary Altomare, and Brian Naijrass



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