



(UNCLASSIFIED)



Sustainability as a Force Multiplier in the U.S. Army

Tom Lillie and John Fittipaldi

National Defense Industrial Association
Environment, Energy Security & Sustainability Symposium
Denver, CO
June 14-17, 2010

(UNCLASSIFIED)

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE JUN 2010		2. REPORT TYPE		3. DATES COVERED 00-00-2010 to 00-00-2010	
4. TITLE AND SUBTITLE Sustainability as a Force Multiplier in the U.S. Army				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Office of the Assistant Secretary of the Army (Installations & Environment), Army Environmental Policy Institute, 110 Army Pentagon Room 3E464, Washington, DC, 20310-0600				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES Presented at the NDIA Environment, Energy Security & Sustainability (E2S2) Symposium & Exhibition held 14-17 June 2010 in Denver, CO.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 19	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



(UNCLASSIFIED)



What is Sustainability?

Sustainability has many different meanings.

- **The right thing to do, morally and ethically, for the survival of the planet.**
- **A guiding principle that mankind should embrace for the benefit of future generations.**
- **Essential to the long term availability of resources.**



Sustainability is a movement that overlaps religion and science.

(UNCLASSIFIED)



(UNCLASSIFIED)



Why is Sustainability Important?



“.... no generation can contract debts greater than may be paid during the course of its own existence.”

Thomas Jefferson, 1789

“Nor can we consume the world's resources without regard to effect. For the world has changed, and we must change with it.”

Barack Obama, 2009



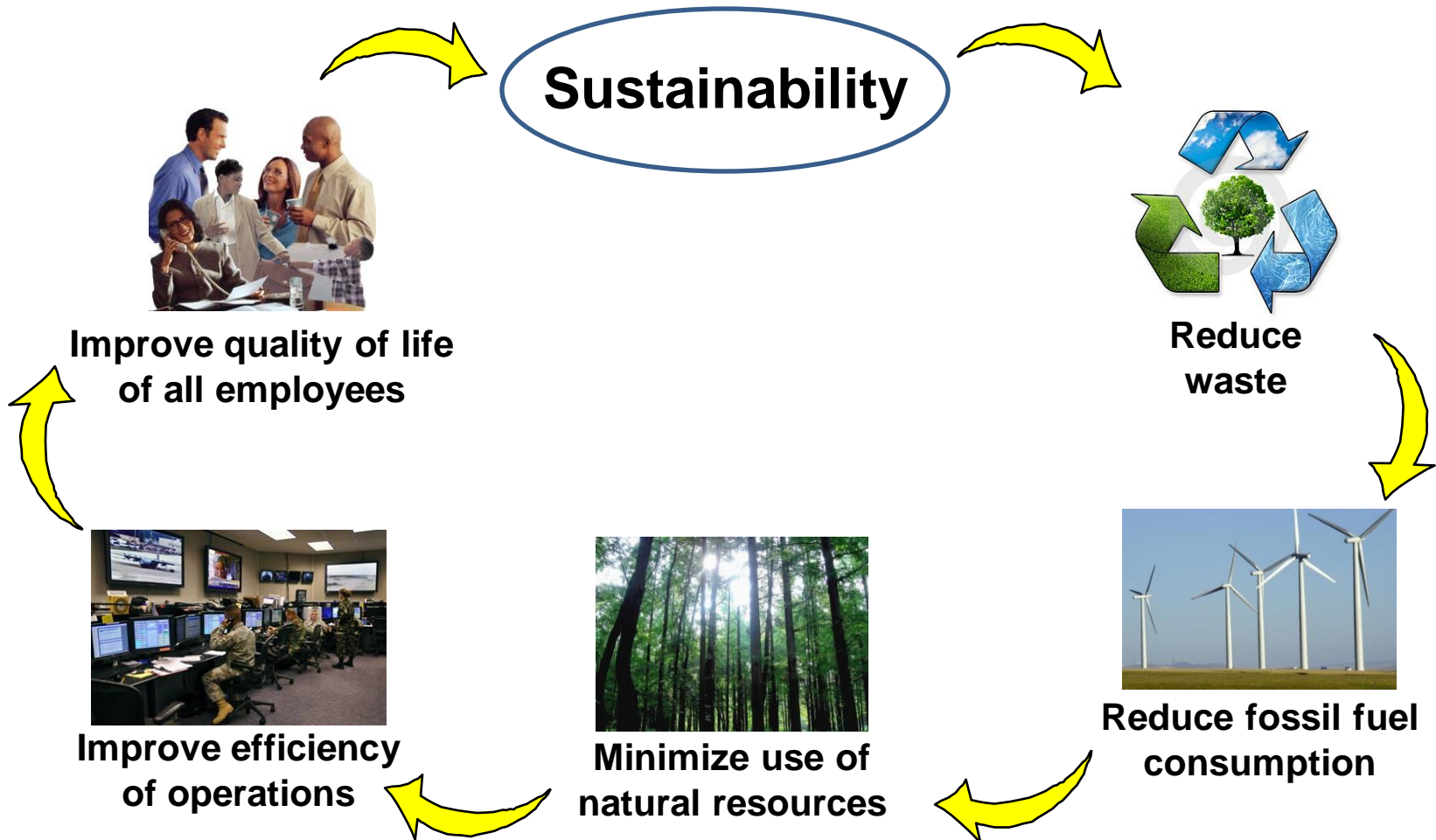
(UNCLASSIFIED)



(UNCLASSIFIED)



Why is Sustainability Important?



(UNCLASSIFIED)



(UNCLASSIFIED)



Corporate Comparison

The US Army is comparable to a major corporation in terms of funding, assets and global reach. The Army would rank 5th in comparison to Fortune 500 companies based on funding alone.

Top 5 Fortune 500 Companies (2009)

Company	Revenue (\$B)
1. Exxon Mobil	442.85
2. Wal-Mart Stores	405.61
3. Chevron	263.16
4. ConocoPhillips	230.76
5. General Electric	183.20

Army Demographics

Mission: “To fight and win our nation’s wars.”

Operating Locations: worldwide

Funding: \$190 Billion

Personnel

Active: 500,000

Reserve: 500,000

Civilian: 300,000

TOTAL: 1,300,000

The US Army is not jumping on the sustainability bandwagon. The Army is adopting sustainability because it is the right thing to do – environmentally, socially, and economically.

(UNCLASSIFIED)



(UNCLASSIFIED)



Roots of Sustainability

National Environmental Policy Act

“....fulfill the responsibilities of each generation as trustee of the environment for succeeding generations”

“....to create and maintain conditions under which man and nature can exist in productive harmony”

“....fulfill the social, economic, and other requirements of present and future generations of Americans”

Sikes Act

“....the sustainable multipurpose use of the resources”

“....sustainable use by the public of natural resources”

Pollution Prevention Act

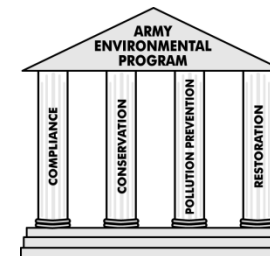
“... pollution should be prevented or reduced at the source whenever feasible”

(UNCLASSIFIED)



(UNCLASSIFIED)

How did the Army come to Adopt Sustainability?



1940s – “Spartan Simplicity”: a limited program that focused on controlling erosion and fugitive dust

1960s – Natural Resources Management to include hunting, fishing, grazing, timber harvest, and pest control

1990s – Four Environmental Pillars: compliance, conservation, restoration and pollution prevention

2000s – Sustainability and the Triple Bottom Line: mission, environment, and community



Transitioning to sustainability was a natural evolution for the US Army rather than a radical transformation.

(UNCLASSIFIED)

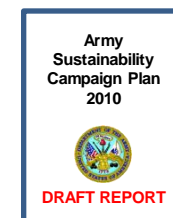
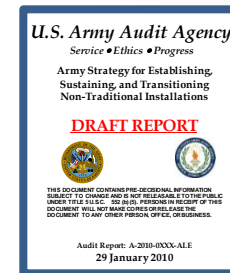


(UNCLASSIFIED)

How is the Army Implementing Sustainability?



- 2001 – Sustainable Fort Bragg
- 2004 – Army Strategy for the Environment
- 2004 – First Darden Army Sustainability Course
- 2006 – AFRICOM Project
- 2008 – Army Sustainability Report
- 2008 – RAND Green Warriors Report
- 2008 – Sustain the Mission Project – Fully Burdened Cost of Fuel and Water
- 2010 – Army Audit Agency Draft Report
- 2010 – Army Sustainability Campaign Plan
- 2010 – DoD Sustainability Steering Council



(UNCLASSIFIED)



(UNCLASSIFIED)



Next Steps

“By effectively managing environmental issues during deployments, Army units and commanders can gain tactical and strategic benefits that can extend from combat into the post-conflict phase of operations.”

Rand Green Warriors Report



(UNCLASSIFIED)



(UNCLASSIFIED)

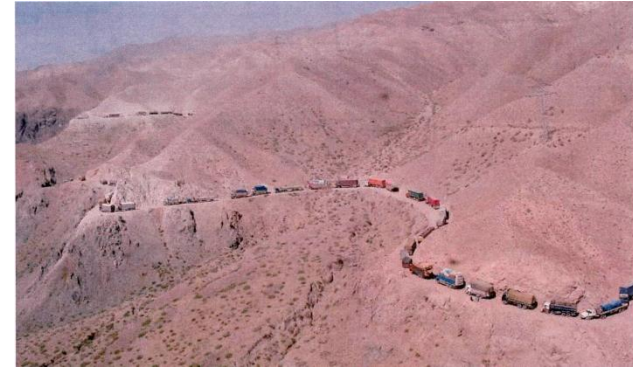


Comprehensive Program

Environmental issues include:

- Environmental conditions affecting soldier health
- Clean water, sewage, and other environmentally related infrastructures
- Historical and cultural property protection
- Pollution prevention
- Agricultural Development Teams
- Environmental management
- Management of natural resources
- Wildlife protection

Note: Many of the issues we face on a day-to-day basis at fixed installations also exist in base camps.



(UNCLASSIFIED)



(UNCLASSIFIED)



Sustainability as a Force Multiplier

Force multiplier refers to a practice or capability that, when implemented, can increase the combat potential of a military unit and enhance the probability of a successful mission.



Sustainability offers the greatest benefit:

- **When base camps are occupied for extended periods.**
- **When semi-permanent to permanent infrastructure is constructed.**
- **When resupply convoys are needed on a recurring basis.**
- **When deployed forces encounter religious, historical and/or natural resources.**
- **When military forces become engaged in nation building.**

(UNCLASSIFIED)



(UNCLASSIFIED)



Burn Pits



- Progress is being made.
- Burn pit message has been shared with key forwarding operating base (FOB) leadership.
- Bigger FOBs are showing more progress than smaller FOBs.
- Funding process is an issue.

(UNCLASSIFIED)



(UNCLASSIFIED)



Incinerators

- Replacement for burn pits.
- Better than burn pits for long-term use.
- Requirements uncertain at smaller sites.
- Funding an issue when cost exceeds \$750,000.



(UNCLASSIFIED)



(UNCLASSIFIED)



Waste Water



- Too many “Pump-n-Dump” contracts.
- Big forward operating bases (FOBs) further along than smaller FOBs.
- Real estate is an issue....there’s not enough.
- Funding process is an issue.



(UNCLASSIFIED)



(UNCLASSIFIED)



Hazardous Waste



- **Generally well run.**
- **Contracts in place for disposal to Denmark and Germany.**
- **Defense Reutilization and Marketing Service shipping recycled materials as hazardous wastes due to local Host Nation shortfalls.**

(UNCLASSIFIED)



(UNCLASSIFIED)



Medical Waste



Regulated medical waste (RMW) sometimes disposed of in land fills or burn pits.

“Homemade” RMW incinerators are ineffective and potentially harmful.



(UNCLASSIFIED)



Many locations ship RMW for disposal to a forward operating base with an approved medical waste incinerator.



(UNCLASSIFIED)



Contingency Tent Solutions



- **Foaming still occurring and will continue for soldier billets.**
- **Safety concerns with tent foaming.**
- **Other options available for tent solutions including incorporating solar collectors.**

(UNCLASSIFIED)



(UNCLASSIFIED)



What is the best way to get Water?



Bottled Water

or



Water Bladder



Reverse Osmosis Water Purification

or



Solar-powered Water Purifier

(UNCLASSIFIED)

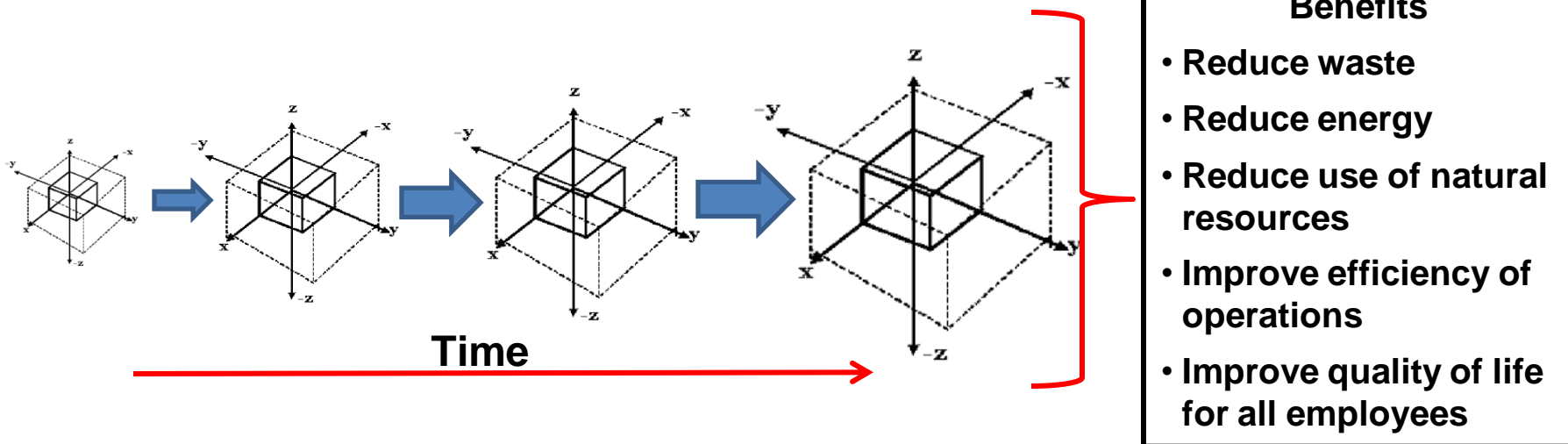


(UNCLASSIFIED)



Conclusion

Sustainability is multidimensional within an organization. It is a systems-thinking approach that applies horizontally across every office and discipline, vertically through every level of management, and deep into every operation.



Once specific goals are established and implemented throughout each of these dimensions, an organization can reap tremendous benefits over time.

(UNCLASSIFIED)